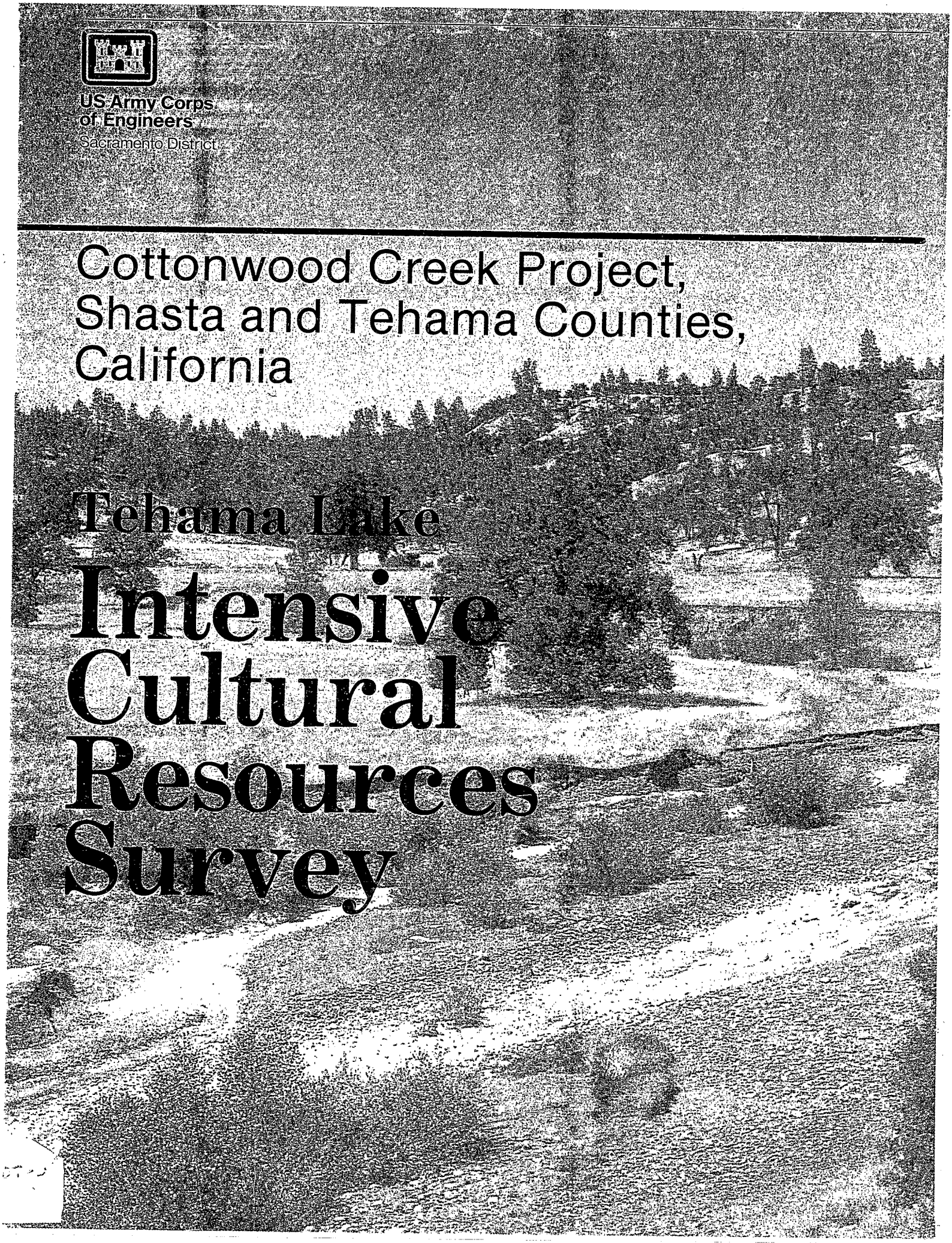


US Army Corps
of Engineers
Sacramento District

Cottonwood Creek Project,
Shasta and Tehama Counties,
California

Tehama Lake

Intensive Cultural Resources Survey

SECURITY CLASSIFICATION OF THIS PAGE *(When Data Entered)*

REPORT DOCUMENTATION PAGE

READ INSTRUCTIONS BEFORE COMPLETING FORM

1. REPORT NUMBER	2. GOVT ACCESSION NO. / 3. RECIPIENT'S CATALOG NUMBER
4. TITLE *(and Subtitle)* Cottonwood Creek Project Shasta and Tehama Counties, California: Tehama Lake Intensive Cultural Resources Survey	5. TYPE OF REPORT & PERIOD COVERED Final 1982-1983 6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) Jerald J. Johnson and Dorothea J Theodoratus	8. CONTRACT OR GRANT NUMBER(s) DACW05-81-C-0094
9. PERFORMING ORGANIZATION NAME AND ADDRESS Foundation of California State University 6000 J Street Sacramento, CA 95819	10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS U.S. Army Corps of Engineers, Sacramento District 650 Capitol Mall (SPKED-D) Sacramento, CA 95814	12. REPORT DATE September 1984 13. NUMBER OF PAGES
14. MONITORING AGENCY NAME & ADDRESS *(if different from Controlling Office)*	15. SECURITY CLASS. *(of this report)* Unclassified 15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT *(of this Report)*

Approved for public release; distribution unlimited

17. DISTRIBUTION STATEMENT *(of the abstract entered in Block 20, if different from Report)*

18. SUPPLEMENTARY NOTES

Cottonwood Creek Project, Shasta and Tehama Counties, California: Tehama Lake Test Excavations. (Final Report due April 1985)

19. KEY WORDS *(Continue on reverse side if necessary and identify by block number)*

Tehama Lake	Ethnography	Dutch Gulch Lake
Archeology	Cultural Resources	Yana Indians
History	Bald Hills Wintu Indians	Nomlaki Wintun Indians

20. ABSTRACT *(Continue on reverse side if necessary and identify by block number)*

Archeological, ethnographic, and historical research undertaken in 1982-1983 in the Tehama Lake portion of the proposed Cottonwood Creek Project, Tehama County, California. An intensive archeological survey of approximately 21,000 acres in the project area was completed. One hundred and twenty two cultural resources were recorded (80 prehistoric sites and 33 historic sites, while nine of the prehistoric sites also had historic components). Ethnographic and historic research added considerable detail concerning the cultural

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE *(When Data Entered)*

C—074661

C-074661

resources. One prehistoric district was determined significant enough to be recommended for nomination to the National Register of Historic Places. A large number of these sites warrant additional study.

The 1352 acres for which access was denied need to be surveyed for cultural resources as soon as possible. In order to determine how much archeological fieldwork will be needed additional archival and ethnographic research should be undertaken during the next study period. The goal of further ethnographic fieldwork should be the collection of data from additional consultants who were unavailable during the earlier investigation and the study of cultural patterns which have a direct relationship to the archeologically identified sites. Data collected during fieldwork suggests cultural resources at Tehama Lake have the potential to shed considerable light on the Native American use of an area peripheral to the main settlements on the Middle and North Forks of Cottonwood Creek to the north and the Sacramento River to the east. The archeological sites on the South Fork of Cottonwood Creek and Dry Creek are quite different from those in the Dutch Gulch area and along the Sacramento River. The sites are fewer in number, considerably smaller, and of a much different content. Additional work should be oriented toward investigation of these differences and the development of an understanding of what they represent.

One particular area of study which needs additional fieldwork is the investigation of the large number of large uniface core tools on the higher ridges within the project area. This phenomenon has been identified elsewhere in the North Coast Ranges but has yet to be adequately addressed. The presence of obsidian artifacts at several of the prehistoric sites provides the opportunity to see what part the occupants of an area of less intense settlement participated in the trade of this important exotic material.

It was initially assumed that the Tehama Lake area was occupied by the ancestors of the Nomlaki Wintun but certain artifacts found during fieldwork and information provided by Bald Hills Wintu consultants suggest their predessors may have been the most recent Native American occupants of the region.

The presence of a few manos and metates and some older projectile point types suggest the presence of a pre Wintu occupation in the region and should be further investigated. Another interesting pattern was the presence of Native Tobacco on two prehistoric sites. This type of plant was important to many ethnographic populations in northern California and its direct association with the sites at Tehama Lake provides a parallel with similar occurrences at both Dutch Gulch Lake and in the Southern Cascade Foothills across the valley. These patterns along with the wide variety of sites, artifacts, and features recorded during the inventory have helped provide considerable insight into the history and prehistory of northern California.

Cottonwood Creek Project
Shasta and Tehama Counties, California

Tehama Lake
Intensive Cultural Resources Survey

Jerald J. Johnson, Senior Principal Investigator
Dorothea J Theodoratus, Co-Principal Investigator

Submitted by
The Foundation of California State University, Sacramento
and
Theodoratus Cultural Research, Fair Oaks, CA

Contract # DACW05-81-C-0094

September 1984

Archeology
Steven B. Dondero, M.A.
Jerald J. Johnson, Ph.D.
Judith D. Tordoff, Ph.D.

Ethnography/History
Ruth Begell, M.A.
Ann H. Johnson, Ph.D.
Clinton M. Blount, Ph. C.
Dorothea J Theodoratus, Ph. D.

US Army Corps
of Engineers
Sacramento District

ABSTRACT

The archeological, ethnographic and historical research detailed in the following report was undertaken in 1982 in the Tehama Lake portion of the proposed Cottonwood Creek Project, Tehama County, California. An intensive archeological survey of 94 percent of the approximately 22,000 acres in the project area was completed. One hundred and twenty two cultural resources were recorded, including 80 prehistoric sites and 33 sites of historic derivation. Nine of the prehistoric sites also have historic components. The ethnographic and historic research added considerable detail concerning the cultural resources and provided part of the basis for determining the potential significance of many of the sites. On the basis of this research, one prehistoric district was determined to be significant enough to be nominated to the National Register of Historic Places.

The large number of archeological sites considered significant warrant additional study. The 1351.51 acres to which access was denied need to be surveyed for cultural resources as soon as possible. In order to determine how much archeological fieldwork will be needed, additional archival and ethnohistoric research should be undertaken during the next study period. Goals of further ethnographic fieldwork should be the location and collection of data from additional consultants who were unavailable during the earlier investigation, and the study of cultural patterns which have a direct relationship to the archeologically identified sites.

Data collected during the 1982 fieldwork suggests the cultural resources at Tehama Lake have the potential to add to our knowledge of subsistence, settlement, social-political spheres, economic exchange networks, and mortuary practices. The next phase of research should concentrate on cultural chronology and the exploration of questions of local and regional application. Mitigation through excavation, additional historical and ethnographic research and interpretation should be phased and flexible.

In comparison with Dutch Gulch, the Tehama Lake portion of the Cottonwood Creek project area contains a lower percentage of sites in relatively good condition, and therefore has a smaller volume of deposit suitable for excavation. The house pits of Native American derivation and a variety of other features have considerable potential in any investigation of settlement patterns. The presence of obsidian suggests the importance of regional trade networks, while the presence of large numbers of core tools and lithic scatters away from the major prehistoric village sites are possible indicators of special subsistence procurement activities. The presence of manos and metates in the project area are thought to be indicators of an earlier Native American population which lived in the region prior to the movement of the Wintu to Cottonwood Creek. Artifacts such as bow smoothers and projectile points have also proved useful in helping to distinguish cultural boundaries between the Wintu and the Nomlaki and Yana. The wide variety of sites, artifacts, and features recorded during the inventory have helped provide considerable insight into the history and prehistory of northern California.

PREFACE

This report contains the results of an intensive cultural resources survey of the Tehama Lake portion of the proposed Cottonwood Creek Project. The work was undertaken by the Foundation of California State University, Sacramento, for the Sacramento District of the U.S. Army Corps of Engineers pursuant to contract number DACW05-81-C-0094. Portions of the work were completed by Theodoratus Cultural Research, Inc. (TCR), which acted as subcontractor to the California State University, Sacramento Foundation. Research began in May 1982 and continued until December 1982.

Senior principal investigator for the project study was Jerald J. Johnson, Ph.D., Associate Professor of Anthropology at California State University, Sacramento, who directed the archeological portion of the research. Dorothea J Theodoratus, Ph.D., Professor of Anthropology at California State University, Sacramento, and President of TCR, served as co-principal investigator for ethnography and history. Ruth Begell, M.A., ethnographic researcher at TCR, completed much of the ethnographic field research. Clinton M. Blount, Ph.C., principal ethnographer for TCR, contributed to the ethnographic portion of the report. The project historian was Ann Hagerman Johnson, Ph.D., principal historian at TCR. Sally Woodbridge served as consultant on architectural history, and Vance G. Bente' was consulted concerning historic archeology.

ACKNOWLEDGMENTS

The Foundation of California State University, Sacramento, and Theodoratus Cultural Research wish to acknowledge the contributions of the many organizations and individuals who made the completion of this study possible. Personnel at the U.S. Army Corps of Engineers were helpful throughout the research. Col. Arthur E. Williams, District Engineer, is thanked for his support. We especially acknowledge the contributions of Sannie Kenton for her patient supervision of the work; Bob Bird and Wladimir Boiko for their assistance in locating present and former residents of the Tehama Lake area; and Carl Cole, whose rapport with many of the landowners helped smooth the way for the fieldworkers. In addition, the assistance of George Weddell (Chief of Engineering), Jim Mulcahy, Harold Harano, Clark Stanage, Herb Staeger, and Eiichi Takahashi is greatly appreciated.

Instrumental in conducting the archeological portion of the project were crew chiefs Steven Dondero, Terrence Schuster, John Dougherty and George Meckfessel. In addition, Dondero and Schuster served as field coordinators during the last two months of fieldwork and deserve special recognition for their diligence. Steven Dondero coordinated the completion of the site records and assumed responsibility for final recording of prehistoric sites. Terrence Schuster coordinated the recording of the historic archeological sites and the visit of the historic archeological consultant.

The hard work of the archeological survey crews is gratefully acknowledged. The survey team consisted of Beth Bennett, Kenneth Bethard, Jeri Donovan, John Dougherty, Susan Fuhr-Dunn, Chris Fenza, Larissa Hordynsky, George Meckfessel, Judith Tordoff, Eileen Spencer, Keith Syda, and Eric Wohlgelmuth. Native American surveyors were Robert Burns, Richard Grant, Robert "Lee" Grant, and Leslie "Dick" Philpot. The final site maps were prepared by Keith Syda. Steven Dondero and Marianne Russo developed the archeological site forms.

We would also like to thank Bill Dreyer and Krista Deal of the California Archeological Site Inventory Information Center at California State University, Chico, for their assistance in report preparation. The Information Center at CSUC provided considerable assistance in the acquisition of relevant manuscripts and archeological site data, and expedited the evaluation of the completed record forms.

Of the many landowners in the project area, several were especially helpful toward the completion of the study. These were Brian Huelsman, Leland "Bud" Knoch, Sadie McKerras, Dr. Andrew Noble, Linda Pritchart, Anne Read, Irwin Rogers, Cody Spahne, John Stewart, and Louis Sullivan. In addition, Dr. Noble allowed test excavations at CA-TEH-1196 and -1197, Mr. Sullivan at CA-TEH-387 and -1232, Mr. Knoch at CA-TEH-1211, and Mr. Rogers at CA-TEH-1264. Robie Capehart (of the Knoch Ranch) was helpful on many occasions and volunteered information on the history of the area. Rogerio DeFonseca, Larry LaLaguna and Dave Carpenter provided information and access to land under their care, while John Hencratt provided access to his leased land and a large amount of data on many of the historic sites in the area.

The historical research was facilitated through the assistance of The Bancroft Library, the California State Library, the Federal Archives and Records Center in San Bruno, the Bureau of Land Management in Sacramento, the Shasta County Historical Society, the Tehama County Historical Society, the Shasta County Library, the Tehama County Library, the Cottonwood Museum, and the Special Collections of the Library at California State University, Chico.

Historians Edward Peterson and Ruth Hitchcock provided many insights into the historical data concerning the study area. Among the many other local residents who provided historical information, John Hencratt and Mrs. Leisher must be mentioned for their extensive contributions. The project historian was assisted in archival research by Teri Paul and Mary Williams.

The enthographic research component was made easier with the help of many Native American consultants. Principle among these were Ed Grant and Isabel Grant. We are especially indebted to the late Al Thomas, whose vast knowledge and wonderful humor made our research a pleasure.

Photographic reproduction and plate preparation were the responsibility of Steven Dondero, Leonard Lanigan, and Joan Northrop. The preparation of the illustrations as well as final layout, and the drafting of many of the maps were by Tammara Ekness. We are indebted to Elaine Sundahl, Helen McCarthy, Dr. Makota Kowta, and Dr. Eric Ritter for the time they took from their busy schedules to read and comment on the draft report. Their effort has helped improve both the form and content of this final product.

TABLE OF CONTENTS

C-074669

PLATES

MAPS

FIGURES

TABLES

CHAPTER 1

INTRODUCTION

The Cottonwood Creek project area is located in north central California, Shasta and Tehama counties, in the area west of U.S. Interstate 5 between the cities of Red Bluff and Redding (Map 1). Planning for the proposed project was authorized by Congress in the Flood Control Act of 1970 (PL 91-611). The U.S. Army Corps of Engineers (Sacramento District) undertook a series of studies to determine the feasibility of constructing dams which would result in the formation of two multi-purpose lakes, Dutch Gulch Lake and Tehama Lake. The present report is on the Tehama Lake portion of the proposed project area, which is located on South Fork Cottonwood Creek, and which will comprise approximately 22,000 acres of land, including the dam and reservoir, spillway, flood plain, relocation and recreation lands, borrow areas and other miscellaneous acreages.

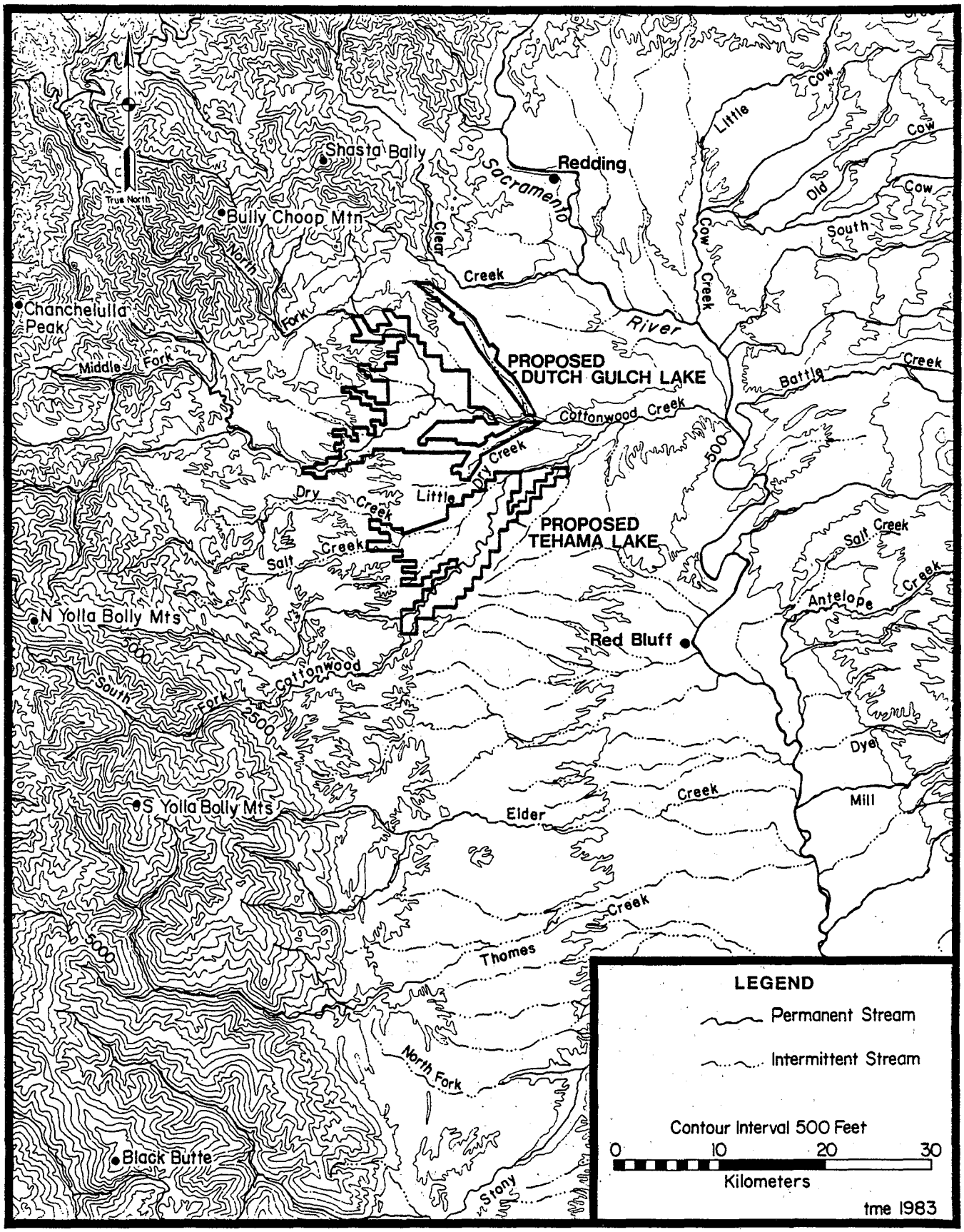
These lands contain cultural resources which might be impacted by the project; the sites must therefore be located and evaluated (Exec. Order 11593 and PL 93-291). In October 1981, the U.S. Army Corps of Engineers, Sacramento District, contracted with the California State University, Sacramento (CSUS) Foundation to conduct the required cultural surveys and evaluations. The archeological work has been conducted through the Archeological Study Center at CSUS, and the ethnographic, historic, and architectural evaluation has been carried out by Theodoratus Cultural Research (TCR), Fair Oaks, California. TCR consultants were Judith D. Tordoff for the historic archeological work, and Sally Woodbridge (Berkeley) for the architectural evaluation. Vance Bente' of Legion Archaeological Research also participated in the early phases of the historic archeological analysis.

This study provides data regarding the prehistoric and historic archeology, ethnology, and history of the Tehama project area. It is intended to serve the Corps in project planning. The authors hope that the report will contribute also to the general understanding and appreciation of the cultural resources in the study area.

Purpose

The purpose of the research has been to locate all cultural resources in the Tehama Lake project area and to evaluate each of these resources for possible nomination to the National Register of Historic Places. The area has been the subject of two previous archeological sampling surveys (Johns 1969; Jensen 1978). These surveys did not have as their objective a complete or one hundred percent survey of the project area; rather, their purpose was to develop preliminary estimates of the type and number of cultural resources which might be expected. The present study comprises a thorough, nearly one hundred percent survey (Appendix A). The study has resulted in a virtually complete inventory of resources based on intensive field surveys, reviews of pertinent bodies of literature, and contacts with persons knowledgeable about the ethnography and history of the area.

MAP 1



LOCATION OF THE COTTONWOOD CREEK PROJECT
DUTCH GULCH AND TEHAMA LAKES

2

C—074674

C-074674

A second purpose of the study has been to prepare a plan for the mitigation of adverse impacts to cultural resources brought about by construction and operation of the Tehama Lake project. The preparation of this plan was preceded by the inventory and assessment of potential eligibility of each resource for the National Register of Historic Places. Those individual resources, or sets of resources potentially eligible as a unit in a "district," are the focus of the mitigation and preservation recommendations. Recommendations also include methods whereby the non-archeological (ethnographic and historic) resources can be examined and preserved. Since the completion of the detailed archeological survey, six prehistoric sites have been test excavated. The data derived from this later work will be presented in a subsequent volume and will contain a re-examination of the survey information presented in this report.

Scope of Work

The Tehama Lake cultural resources investigation was guided by a scope of work and a research design (see Chapter 2) based on the 1981 Dutch Gulch Lake survey (Johnson and Theodoratus 1984a). The Request for Proposal (RFP) issued by the Sacramento District Army Corps of Engineers outlined the basic components which were to comprise the present research effort. The Statement of Work, which concentrated principally on the tasks to be accomplished by the archeological research component, required the following:

1. A review of published and unpublished material which would be useful in locating and assessing archeological, historical, and ethnographic resources (e.g., archeological site survey records; ethnographic and historic documents; the Register of California Historic Landmarks; previous research reports covering the project area).

2. Contact with knowledgeable persons who might have information about the project area (i.e., local historians; archeologists who have worked in the area; local residents).

3. Consultation with local Native Americans for the identification of sites of cultural (including religious) significance.

4. Completion of an "on the ground" survey for the purpose of identifying resources in the entirety of the project area.

5. Assessment of the significance of each resource in the inventory with reference to eligibility requirements for the National Register of Historic Places.

6. Preparation of nomination forms for resources or resource districts which are judged to be potentially eligible for the National Register of Historic Places.

7. Preparation of suggestions for protection or mitigative alternatives for each site in the cultural resource inventory.

8. Preparation of a comprehensive report which discusses the archeological, historical, and ethnographic backgrounds of the project area; summarizes contacts with the Native American community; presents the inventory of cultural resources; and provides assessments of significance and management, protection and mitigation recommendations.

This report presents the results of the completion of these tasks.

Project Setting

The topography within the Tehama study area has many aspects. Low and intermediate alluvial terraces along Dry Creek and South Fork Cottonwood Creek are the dominant land form, while the higher terraces typical of the Dutch Gulch Lake portion of the Cottonwood Creek project, six kilometers to the north, are absent here (Murphy et al. 1969). The relatively open Bald Hills grasslands, prevalent in the western edge of the Dutch Gulch section, are also absent in the Tehama area. The terrain on the northwest side of Dry Creek and the southeast side of South Fork Cottonwood Creek is steep, dissected by many gulches, and often covered with a heavy growth of live and blue oaks, digger pine, poison oak, manzanita, coffeeberry, buckbrush, and other types of brush. Much of the landscape between these streams consists of relatively flat ridges which terminate in steep slopes or a vertical drop, sometimes in excess of nine meters. Most of the terraces along the two major drainages are covered with young blue oak and digger pine trees. There is considerable physical evidence that at one or more times in the past much of the vegetation has been cleared from the terraces and ridges with the use of heavy equipment. Wood cutters are currently removing much of the blue oak within the project area. On the South Fork of Cottonwood Creek, the overall impression is one of dense brush, limited water, and open grasslands; on the other hand, the Middle and North forks in the Dutch Gulch area have a more open vegetation pattern and abundant water.

The main geologic formations found at Tehama Lake are the same as those identified for the Dutch Gulch area by Murphy, Rodda, and Morton (1969), Irwin (1966), and Dailey (1973) . The most recent deposits consist of the Pleistocene alluvium which account for the low (5'-20') and intermediate (40'-90') terraces adjacent to the major stream channels and atop nearby ridges. Completely surrounding and underlying these terrace deposits are the gravels and clayey silts of the Red Bluff and Tehama formations. These thick Pliocene and early Pleistocene alluvial deposits are interbedded twice by exposures of Nomlaki tuff. The deposits account for the vast majority of the exposed geology in the project area. At the extreme west end of the proposed reservoir is the first exposure of the Gas Point member of the Budden Canyon Formation. This includes mudstone with limestone concretions and stratified sandstone and mudstone. From two and one-fourth to six and one-half miles (3.62 to 10.46 kilometers) farther west are the north-south trending bands associated with the Bald Hills, Chickabally, Huling, Roaring River and

Ogo members of the Budden Canyon Formation. Limestone concretions, cretaceous invertebrate fossils, and chert, sandstone, and porphyritic volcanic rocks, which occur as stream cobbles in the project area, originate from this formation.

An analysis of lithic materials found in the stream channels, in erosional exposures on terraces and ridgetops, and in the six test excavated middens indicates a wide variety of materials were available to the prehistoric occupants of the area. Included are substantial quantities of basalt, chert, ocher, slate, schist, quartz, quartzite, limestone, and various other metavolcanics, While small amounts of a variety of other rocks and minerals are also known to occur. Variations between the Dutch Gulch and Tehama Lake localities in the occurrence of site types, as well as in artifacts of certain material types, is accounted for by the differences in locally available rock types in the two areas. Unlike numerous locations in the western portions of the Dutch Gulch project area, few sandstone dikes were noted at Tehama Lake. The sandstone that did occur was of poor quality for use as milling tools. Because the creeks in the Tehama project area drain a portion of the Coast Ranges rather than the auriferous Klamath Mountains upstream from the Dutch Gulch area, gold, silver, and platinum are not well represented here. This fact is reflected in the virtual absence of mining sites in the project area.

Invertebrate fossils occur along the western periphery of the Tehama project area, and were seen infrequently during the archeological survey. Vertebrate fossils were found on both major drainages and in many of the numerous smaller creeks and gulches. While many of the fossil shells found in Wintu sites to the north may have come from the Dutch Gulch Lake project area, the horse teeth and other Pleistocene faunal material found in sites elsewhere in the region (for example CA-TEH-58) (Treganza 1954, 1963) may have been derived from the Tehama Lake area and south toward Red Bluff and Red Bank Creek.

Soils in the project area were tested for carbonates and, for the most part, were slightly to moderately acid. This is substantiated by the results reported in the "Soil Survey of Tehama County, California" by Gowans (1967). The prehistoric middens tested with a 30 percent solution of muriatic acid often had a strong reaction, suggesting that carbonate dating of archeological sites in the Tehama Lake area is possible.

Because the various soils are generally neutral to slightly acid in pH, often rocky, and from moderate to deep (Gowans 1967), the habitat throughout the project area is suitable for a wide variety of vegetation. Many of the low terrace soils are currently under cultivation; both the low and some of the higher terraces apparently have been farmed in the past.

The main plant communities in this part of the interior Coast Range, according to Munz and Keck (1959), include the oak grassland and chaparral. The principal plants are valley oak, blue oak, interior live oak, buckeye, coffeeberry, digger pine, elderberry, squawbush, manzanita, poison oak, turkey mullien, and buckwheat, along with a variety of forbs, herbs, compositae, and grasses (Griffin 1977:387-388). The riparian habitat along the streams is dominated by willows, alders, blackberries and cottonwoods (Barbour and Major 1977; Thompson 1961). Introduced plants which affected the archeological fieldwork included star thistle, hoarhound, filaree,

bermuda grass, and wild geranium. These plants, common in the project area, often made it difficult for the archeological crews to see the ground surface.

Vegetation was most dense in the numerous gulches and steep hillsides, while most of the open ridges and hills had been cleared as a result of ranching and farming activities. In several places within the project boundaries the vegetation had recently been bulldozed to encourage better grass habitat for cattle grazing, and considerable wood cutting was in progress.

The fauna associated with the vegetation and other resources within the project area include most of the large animals found in the north central part of the state. Probably most important were deer, antelope, elk, bear, badger, coyote, bobcat, wolf, and mountain lion. Based on the faunal remains recovered from test excavations at CA-SHA-290/H on North Fork Cottonwood Creek, it is evident that many small mammals, rodents, turtles, a variety of fish, and several types of birds were also present in this part of northern California (George and Mertz 1983). A more complete listing of fauna available in the area, and their probable uses by the Indians, is included in Ingles (1965), DuBois (1935), Goldschmidt (1951), and George (1981). A complete listing of the fish formerly found in the Cottonwood Creek drainage is presented by Casteel (1970), with salmon, steelhead trout, and squawfish most important economically (George and Mertz 1983). Although the six prehistoric sites tested in 1982-1983 did not contain an abundance of faunal remains, they will provide some additional information when analyzed.

The South Fork of Cottonwood Creek and Dry Creek usually contain water throughout the year, although they do become warm and slow moving in summer and fall. During the winter and spring these streams can become raging torrents, but they tend to subside rather rapidly--within a few days after heavy rainfall ends. According to river gauge data, the flow of water in the streams is variable, and during drought years most of the streams become almost completely dry (California State Department of Water Resources 1977). During the survey some seeps were noted in the gulches, and many of these had been dammed by ranchers to provide water for their livestock.

The alluvial deposits constituting much of the topography apparently contain a moderate amount of ground water. A few hand-dug wells were found, dating from the 1860s and later, and some contained water within 15 meters of ground surface. Apparently some of these wells were never considered good for human consumption because of the bad taste and heavy mineral content. The water flow in Dry Creek and South Fork Cottonwood Creek is sufficient to maintain a warm water fishery with turtles, frogs, and a variety of other amphibians, but does not support major salmon, steelhead or other fish populations (U.S. Department of Army 1980:A62-65). In November 1982, salmon were noted in the South Fork Cottonwood Creek by project personnel. Apparently the major spawning ground for salmon and trout occur upstream from the reservoir site.

The climate, having a decided impact on the project setting, is characterized by dry summers with high temperatures and warm nights (U.S. Weather Bureau 1934). Winters are cool and moist, with 80 percent of the annual precipitation falling between November and March. There is occasional fog, but it does not persist for

great lengths of time, as it does characteristically in the Sacramento Valley to the east and southeast. There is some ice and light frost, but these do little damage to plants in the area. Spring and fall are usually short seasons, and sometimes do not occur at all (California Almanac 1971:231). The project area is within what Russell calls the "Csa" climatic type, characterized by temperatures ranging from highs between 85 and 121 degrees fahrenheit in the summer and fall, to as low as nine degrees above zero in the winter (Russell 1926:80-83). Generally, however, the temperatures seldom reach these extremes, providing a relatively mild Mediterranean climate throughout the year.

The amount of rainfall is variable. According to the United States Weather Bureau annual summaries, between 1870 and 1930 the average annual rainfall in the Redding area was 36 inches. At Rosewood, on Dry Creek in the western part of the project area, the rainfall ranged from nine to 44 inches per year between 1894 and 1904 (U.S. Weather Bureau 1934). It is evident that, from year to year, the human populations living on Dry Creek and South Fork Cottonwood Creek had to contend with considerable variation in climate, and this undoubtedly had an impact on their activities.

Previous Cultural Resources Investigations in North Central California

As with much of the rest of California, the prehistory of the northern Sacramento Valley was relatively unknown until after 1950 (Table 1). Few archeological surveys had been completed, and even fewer excavations had been conducted. Most researchers attribute the beginning of prehistoric investigation to Waldo Wedel who, in 1935, test excavated at the Benton Mound (CA-SHA-47) for the University of California at Berkeley (UCB) (Smith and Weymouth 1952:36-42). This large mound, located on the Sacramento River within the city limits of Redding, is on the National Register of Historic Places. In reality, however, an interest in regional cultural resources occurred much earlier than Wedell's work in 1935.

E. Furlong (1904, 1906), W. Sinclair (1904), and John Merriam (1906, 1927), while investigating the Pleistocene fauna in several limestone caves in the Shasta Lake locality, cut through prehistoric cultural deposits in two of them: Samwel and Potter Creek caves. Several pieces of large bone were considered possible artifacts because they were perforated and had polished surfaces. Early research suggested that the perforations might have come from carnivore canine teeth, and the polish from water dripping off the ceiling. Investigators from Cave Research Associates visited the site in the early 1960s and found what appeared to be the base of a Clovis fluted projectile point in one of Merriam's back dirt piles at Samwel Cave (Treganza 1964). This discovery prompted Louis Payen to visit the caves in 1965 and test excavate part of Potter Creek Cave (1970). During the investigation, a hidden alcove containing a large cache of artifacts was located above the entrance to this site. Included were a wooden atlatl, spear shafts and foreshafts (with an obsidian point still attached), cordage with an appended small abalone pendant, and a few other specimens (Payen 1970). These artifacts, while not as old as Clovis points (10,000 to 11,000 B.P.), are probably 2000 to 2500 years old. This find constituted the first published account of prehistoric use of north central California during this time period. An attempt by

students and staff in a 1971 CSUS summer field course in archeology failed to reopen Merriam's lower Pleistocene entrance to Samwel Cave (John Beck, Personal Communication 1971).

Another early cultural resources inventory in the north central part of the state was by Golomshtok of UCB. In 1922, he visited several archeological sites on the Sacramento River near Redding and Red Bluff, and wrote an M.A. thesis on the Atsugewi Indians living in eastern Shasta and northern Lassen counties (Golomshtok 1923). The information gathered by Golomshtok along the Sacramento River has never been published. Gifford (1947) mentioned shell artifacts from a site on the Sacramento River five miles east of Cottonwood, but James Dotta was unable to locate this collection at UCB (Personal Communication 1982). These artifacts, collected prior to 1947, could have been acquired by Golomshtok or through some other source. Other research was conducted by Weymouth and Beardsley, who located over 30 archeological sites on the McCloud arm of Shasta Lake, test excavating three of them in 1941-1942 (Smith and Weymouth 1952).

The 1950s saw a rapid increase in archeological investigations in north central California. Most of these related to the publicaly funded construction of dams, canals, and highways. Some sites, such as CA-SIS-13 near Hornbrook, were test excavated because of imminent danger of damage by vandals (Wallace and Taylor 1952). Throughout the 1950s, Adan Treganza was responsible for most of the archeological investigations in the northern Sacramento Valley and the adjacent western Coast Range. Under contracts with the National Park Service and through the UCB Archaeology Survey, he directed surveys and test excavations most summers between 1952 and 1959. Later, through the Department of Anthropology at San Francisco State College, he continued archeological investigations of this part of California for the National Park Service.

Investigations conducted by Treganza included surveys of Lewiston, Trinity, and Red Bank reservoirs (1952); excavations at CA-TEH-58 at the Red Bank Reservoir in 1953 and 1962; test excavations at sites in the Trinity Reservoir in 1957 and 1958; and test excavations and surveys at Redding, Whiskeytown, and on Clear Creek in 1959. By the late 1950s, Treganza began to work with several other persons in the Redding area who were interested in the prehistory of Shasta County, most of whom were affiliated with the Indian studies group of the Shasta Historical Society. Prominent among them were Donald Boyd, Ann Hunt, Ray Hullinger, and James Dotta. The latter continued to be active in archeological research in Shasta County until his untimely death in August 1982. In the late 1950s, Donald Boyd, through Shasta College, test excavated at CA-SHA-46 on the Sacramento River in Redding. Jay von Werlhof of the UCB Archaeological Survey conducted test excavations at CA-TEH-54, a rockshelter on Paynes Creek east of Red Bluff. In 1952, Martin Baumhoff of UCB (1955, 1957) initiated an archeological program in the southern Cascade foothills in Tehama County southeast of Red Bluff; he also test excavated Kingsley Cave (CA-TEH-1) and Payne Cave (CA-TEH-193).

In the 1960s the number of archeological investigations, and individuals involved, began to increase. Treganza conducted surveys on Clear and Stillwater creeks, in Happy Valley, and along the proposed Tehama-Colusa Canal from Red Bluff to Solano County (Treganza 1963; Treganza, Edwards, and King 1965). Treganza's work at Black

Butte Reservoir in 1960 (Treganza and Heickson 1969) led to the recording of 103 sites, and the test excavation of CA-GLE-10, CA-GLE-11, and CA-GLE-15. He also wrote a report on archeological material associated with CA-SHA-49 (Samwel Cave) (Treganza 1964), and remained interested in the prehistory of the region until his death.

In 1961 Hullinger, Boyd, Hunt, and Pritchard test excavated CA-GLE-97 near Stonyford. In the same year, Brigham Arnold of Sacramento State College surveyed the proposed Pacific Gas and Electric Company's Canadian gas line from the Oregon border on the east side of Tule Lake, cutting across the Pit River at Lake Britton, through eastern Shasta County, and across Paynes Creek, where an archeological site (CA-TEH-1350) was recorded (Arnold 1964) at the eastern edge of the upper Sacramento Valley. A burial pit exposed by the pipeline was the only cultural resource investigated by Arnold within the research area.

In the 1960s, Dotta conducted several archeological projects in southwestern Shasta County. Excavations for the California Division of Highways were conducted at two major middens (CA-SHA-207 and CA-SHA-237) on the east side of the Sacramento River (Dotta 1964; Dotta and Hullinger 1964), at CA-SHA-286 near Bella Vista east of Redding, and at CA-SHA-288 near French Gulch and Whiskeytown Lake (Dotta, Personal Communication 1982).

In the middle and late 1960s, the departments of Anthropology at the University of California at Los Angeles (UCLA) and the University of California at Davis (UCD) began a series of archeological projects throughout the northern Sacramento Valley and adjacent foothills. Staff and students affiliated with several summer field schools, and some crews on contract with the National Park Service, completed test excavations at several sites as well as surveys of several localities. Much of the work was accomplished in conjunction with the Department of Anthropology at Chico State College. Archeological sites CA-BUT-1 (Patrick Site), CA-BUT-12 (Finch Site), CA-TEH-248 (Bambauer Site), and CA-TEH-250 (Case Site) were partially excavated (Chartkoff and Chartkoff 1968). Major cultural resources inventories were completed in the Paskenta-Newville Reservoir area (Chartkoff and Childress 1966), and preliminary surveys were undertaken at the proposed Farquhar School (Tehama) and Dutch Gulch reservoirs (Johns 1969; Leonard 1969). Most of the information from these projects remains in unpublished form.

Students from Chico State College, under the direction of Keith Johnson and Makoto Kowta, test excavated several sites in the north central part of the Sacramento Valley, including CA-BUT-288 (Cana Highway), CA-BUT-294 (Wurtlitzer), CA-BUT-233 (Llano Seco), the Baumbauer site, and three sites on the west side of the Sacramento River (CA-GLE-18, -19, and -105). Several graduate students at CSUC are currently incorporating data from many of these sites into M.A. theses in anthropology.

In 1966 and 1967, UCD began the Dye Creek archeological project, with test excavations at CA-TEH-300 and CA-TEH-309, and a limited survey program (J. Johnson 1970, 1983a). In 1968 the research was transferred to CSUS, and has gradually emerged as the Southern Cascades Archeological Project. Since 1969, seven additional sites (CA-TEH-269, -290, -328, -331, -372, -600 and temporary site Hooper

1979 No.5) have been test excavated, and over 650 sites have been recorded. Most of these investigations have been accomplished by nine summer field schools and several spring field classes. In addition, through a contract with the United States Forest Service, a major portion of Mill Creek Canyon was surveyed in the summer of 1974. Additional surveys and excavations have been carried out by students working on thesis projects (Wilson 1980, Russo 1980, Wiant 1981, Greenway 1982). Prior to 1979, the investigations were confined to the Dye and Mill Creek drainages; since then, they have concentrated on the Salt Creek drainage in the vicinity of the Tuscan Buttes. Approximately 50 square miles have been surveyed for archeological sites--the closest research area with coverage comparable to the Dutch Gulch and Tehama Lake projects (J. Johnson 1983a; Wiant 1981).

Edwards (1968, 1969) resurveyed a portion of the Tehama-Colusa Canal and test excavated six sites on Thomes Creek. He identified a milling stone cultural expression comparable to that found farther south at the Llano Seco Site and at CA-SHA-475 on Squaw Creek near Shasta Lake.

Since the beginning of the 1970s, investigations of cultural resources have increased rapidly. The Southern Cascade Archeological Project at CSUS has continued to expand its data base in the territory of the Southern and Yahi Yana Indians (J. Johnson 1983a). CSUC has undertaken numerous archeological investigations in the Redding area. Included were excavations at the Kett Site CA-SHA-491 (Jensen 1980), CA-SHA-192 (K. Johnson 1976), CA-SHA-177 (K. Johnson and Skjelstad 1974), and CA-SHA-543 (Jensen 1977). Excavations have also been conducted at CA-TRI-205, a site in the Trinity Mountains (Jensen and Farber 1982). Farber and Nuenschwander (1983) have recently reported on the investigations at CA-TRI-327, and Baker (1984) details recent work at the Whiskeytown/Shasta-Trinity national recreation area on Willow and Clear creeks. In 1977-1978, expanded archeological surveys in the Dutch Gulch and Tehama Lake project areas were also carried out by CSUC (Jensen 1978).

After 1970, Shasta College developed an extensive archeological program. Test excavations and surveys have been conducted at numerous locations in and near Redding. Sundahl (1979) investigated the proposed boundary between the Stillwater Wintu and Central Yana using collections obtained from three test excavated and 14 surface collected sites. One of the sites important to this study is CA-SHA-266 (Eagle Court). Much of the material found is apparently comparable to that recovered during the 1982 CSUS test excavations at CA-SHA-290/H. Other sites containing important comparative data are CA-SHA-475 (Squaw Creek [Clewett and Sundahl 1983]) and the Clikapudi archeological district (Clewett and Sundahl 1980, 1982a). In the spring of 1982 Shasta College began the testing of the Rohr Site, two large middens on Antelope Creek southeast of Red Bluff (CA-TEH-835). Clewett, Teach and Spencer (1982) recently reported on research concerning large core tools found near Redding on old ridge tops and terraces. In 1983, Shasta College test excavated CA-TRI-862, an ethnographically known Wintu site (Vaughan 1984) for the Redding office of the Bureau of Land Management. As a result of the Shasta College investigations, Clewett, Sundahl, and others are beginning to formulate hypotheses about the prehistory of the Redding area. Recently, Crew (1984) has studied in detail a collection of lithics from CA-SHA-1434.

The 1981-82 investigation for the proposed Dutch Gulch Lake project was sponsored by the U.S. Army Corps of Engineers. This resulted in the identification and recording of 283 cultural resources and the test excavation of two prehistoric sites, constituting one of the largest archeological projects carried out in northern California (Johnson and Theodoratus 1984a).

Since 1970, several public agencies in northern California have added archeologists to their staffs. Such agencies projects have provided data relevant to the prehistory of the northern Sacramento Valley and surrounding mountains (e.g., Shasta-Trinity National Forest; U.S. Bureau of Land Management, Redding Office; U.S. Army Corps of Engineers; Lassen National Forest; California Department of Transportation, Redding Office; California Department of Water Resources, Red Bluff). For example, the California Department of Transportation funded test excavations at seven sites (Table 1) north of Shasta Lake which will be affected by repair work on Interstate 5 (Raven et al. 1984). Shasta County has contracted for archeological services as needed. In addition, several archeologists have conducted investigations for developers of projects which come under the guidelines of the California Environmental Quality Act (CEQA). A recent project completed for the Southern Pacific Land Company at CA-TRI-327 is an example of this kind of research.

Several governmental agencies have sponsored the preparation of cultural resource overviews oriented toward the lands under their jurisdiction (Jensen and Reed 1979; Johnston and Budy 1982; Theodoratus Cultural Research 1981). It is evident, therefore, that the archeological data base for the Redding area--almost non-existent in 1950--has now been expanded to such an extent that it is now possible for archeologists to make major attempts at formulating hypotheses about settlement and subsistence patterns, social-cultural interaction, material culture, and other aspects of prehistoric populations and cultures. Examples of such studies include Kowta's research design for northeastern California (1975), Wiant's re-evaluation of prehistoric settlement and subsistence in the Southern Cascades (1981), and Greenway's detailed computer-supported projectile point analysis of the CA-TEH-290 specimens (1982).

Until recently, research on historical resources of the region has been rare, as has been the case for ethnohistoric and ethnographic cultural resource studies. Recent exceptions have been the inclusion of ethnographic, ethnohistoric, and historic sections in many of the agencies' overviews produced in the last several years, which have resulted in additional research questions being posed for the area.

The Tehama Lake investigations, along with those at Dutch Gulch Lake, have already contributed many new insights into the prehistory, ethnography, and history of the northern Sacramento Valley and adjacent foothills. Additional studies would undoubtedly provide a basis for testing many of the research hypotheses already developed by archeologists, ethnographers, and historians working in the region, and would lead to the formulation of many new research questions.

Summary of Past Archeological Research

Two archeological investigations took place within the project boundaries before the current study. The earliest work was by the UCLA Archaeological Survey in

1967. At that time, a three-person team apparently walked most of Dry Creek and South Fork Cottonwood Creek, recording nine prehistoric and three historic sites within the project boundaries. Based on the Johns report (1969), it appears that the majority of the land within the proposed reservoir area was surveyed. In accord with survey techniques and research biases present among many California archeologists in the 1960s, little attention was accorded historic remains, and most of the intensive survey was conducted on terraces adjacent to main creek channels. As a result, the majority of prehistoric and historic cultural resources went unrecorded. Since the only topographic map available to the original survey crew was the 1952 Ono 15' USGS Quadrangle; it was difficult to plot correctly the locations of the 12 sites that had been identified.

By 1977, prompted by a change in federal legislation and progress in the engineering and design of the proposed project, it was recognized that additional information was needed on the previously identified cultural resources, and that additional archeological survey coverage was also desirable. A contract was let to the CSUC Foundation to carry out these additional investigations. Prior to the beginning of this contract, one additional historic site had been identified by Corps archeologists, bringing the total known sites to 13. The main provisions of CSUC's scope of work were to relocate and record in greater detail the known sites within the project boundaries, and to survey 1200 acres of land below gross pool level within the proposed reservoir area (Jensen 1978:77). From January 1978 through February of 1978, the CSUC archeological team relocated all but one of the previously noted sites, rerecording them in greater detail. During the course of this work, slightly more than 1200 acres were surveyed in five- to ten-meter swaths, resulting in the recording of three new archeological sites (Jensen 1978:79). Thus, as of April 1978, approximately 18 percent of the total acreage within the proposed Tehama Reservoir had been covered intensively. The Chico archeological team had available maps of the project with a scale of 1"=2000', allowing for better accuracy in the location of the identified cultural resources.

Since the 1967 investigations by UCLA, approximately 18.3 percent of the total project lands were surveyed by professional archeologists, with three additional sites recorded and 12 revisited and rerecorded. Peter Jensen (1978:132), on the basis of information available before 1979, predicted that an additional 21 sites would be found during an intensive survey of the Tehama reservoir area. In 1981, a contract was let to the CSUS Archeological Study Center, through the CSUS Foundation, by the United States Army Corps of Engineers to perform this investigation. The methodology used to complete the required study is detailed in Chapter 3.

Summary of Past Ethnographic Research

The proposed project area lies near the traditional boundary of the Bald Hills Wintu and the Nomlaki. The Nomlaki are linguistically related to the Wintu (both groups speak a Wintun language); however, they are culturally and geographically distinct. The ethnographic research for this study, therefore, required the analysis of both Wintu and Nomlaki materials.

The Wintu and Nomlaki have been described in basic ethnographic monographs, DuBois' Wintu Ethnography (1935) and Goldschmidt's Nomlaki Ethnography (1951). These studies are general; and while they provide valuable background data, neither is adequate for a thorough discussion of the project area. Fortunately, several other investigators have worked with Wintu and Nomlaki peoples. Steven Powers, a noted journalist, passed through the area in the 1870s and published an account with some specific comments on Cottonwood Creek (1877). C. Hart Merriam began to work with members of both groups in the early 1900s. As a naturalist and taxonomist, Merriam was most interested in the classification of languages and population, although his journals and field notes are rich with details on settlements, place names, and plants and their uses. Interestingly, Merriam was not adverse to describing the situation of the Indian people at the time he saw them, and from this the researcher can grasp some sense of the lives of the Nomlaki and Wintu in the early part of the century (Merriam n.d., 1898-1938, 1957; 1966, 1967b). Another ethnographer, John Peabody Harrington, left a substantial body of field data, particularly on the Wintu. Harrington's interest in language, geography and oral literature, along with his dedication to data collection, resulted in useful material for the present research.

Cora DuBois conducted fieldwork in the early 1930s, which resulted in her excellent monographs detailing Wintu life (DuBois 1935) and the 1870 Ghost Dance religion of northern California (1939). Dorothy Demetracopoulou worked with the Wintu in roughly the same period, concentrating on myths and folklore (1935 [Lee] 1941). Demetracopoulou used much of her Wintu material in her work on the relationship between language and thought and self image ([Lee] 1944, 1950). While her work is not directly applicable to the study of culture history, and subsistence/settlement patterns, it does provide insight into Wintu world view.

Some recent work has been conducted in the area, principally to meet federal and state agency planning needs. TCR completed an overview of Shasta-Trinity National Forest which included an extensive inventory of Wintu settlements and place names (1981). More recently TCR completed an inventory of Indian sacred places, which included the traditional territory of the Wintu and Nomlaki (1984). Also, recent research in the area of Stony and Thomes creeks (Johnson and Theodoratus 1984b; Bard, Busby and Kobori 1983), and the excavation and pending reburial of the prehistoric cemetery at CA-TEH-10 (Johnson et al. n.d., in process) has contributed to the knowledge of Nomlaki culture history and current concerns. While not specific to the Tehama Lake area, these recent data are invaluable for comparative purposes.

The data collected by Goldschmidt, DuBois, Harrington and Merriam provided the basis for interviews with Nomlaki and Bald Hills Wintu consultants. Members of the Bald Hills group, Nomlaki people from Grindstone Rancheria (near Elk Creek), and other Wintu and Nomlaki people were interviewed during this research. Interviews stressed the past uses of the general area in which the project lies, focusing on subsistence (plant, animal, and other resource use), settlement, and concerns about sensitive areas and heritage preservation.

Summary of Historical Documentary Research

Documentary research focused on the following sources: historic maps of the region; county, state, and federal records; published primary (i.e., first hand) and secondary historical literature on the county and region; and manuscript data. These sources were sought both in public depositories and in the possession of private individuals and institutions.

Historical maps are one of the best sources of area-specific information for projects of this type because they frequently indicate the location of cultural resources (e.g., houses, schools, stores, post offices) at the time the map was made. Then, too, they suggest land use changes,and give a picture of the settlement pattern in times past. General Land Office survey plats provided the first detailed mapping of the area (U.S.D.I., Bureau of Land Management n.d.:GLO Plats). Dating from 1854, they show roads and some settler sites. Unfortunately, not all portions of the survey quad were thoroughly detailed. However, the surveyor's field notes, from which the maps were supposedly made, filled in some of the the missing data (Tracy 1854). A series of official maps for Shasta and Tehama counties were similarly very useful, as they also showed land ownership and cultural features. The Tehama County maps of 1878 and 1887 (Shackelford and Nugent 1878; Shackelford 1887) are partially reproduced in Chapter 7.

The canvass of published historical literature began with consultation of Rocq's (1970, 1976) bibliographies on California Local History. Most published histories only provide a general context for studying the project area. A few secondary histories were extremely valuable and deserve special mention here. The first of these is Myrtle McNamar's Way Back When (1952). Mrs. McNamar was a long-time Cottonwood Creek resident whose husband served as postman for years. In the early 1950s Mrs. McNamar undertook an extensive series of interviews--both in person and by letter--with "Old Timers" from the Cottonwood Creek vicinity. She also researched public documents and other documentary sources. Her history, which even today remains a typescript document, summarizes the findings of this research. Since it focused on the Cottonwood Creek area (both on the Tehama and Shasta county sides), and since it contained information from old timers which otherwise would have been lost, this history is enormously valuable. The other secondary history important for this project was that by Ruth Hitchcock (1982). Her work, Leaves of the Past, is actually more of an index than an historical synthesis, as it provides a reference to other sources without attempting interpretations. The amount of work which went into this volume is almost unbelievable, and its value to the researcher cannot be overstated.

Other county histories and early publications also provided bits and pieces of information. The volumes by Peterson (1965; 1974) on Tehama and Shasta counties provide a fine introduction to the history of the vicinity. Mr. Peterson combined newspapers and other manuscript sources in preparing these histories. Ruth Hitchcock's history (1968) of the Ludwig family also provides a wealth of insights for the current study.

Several types of public records were consulted with success. The General Land

Office survey plats and accompanying field notes have already been mentioned. Equally important are the Land Status and Use Records, compiled by the Bureau of Land Management, which list chronologically the actions taken to withdraw land from the public domain. When used in conjunction with the Land Patent records, it is possible to identify the original landowners of specific parcels. Equally important to public land records are the manuscripts of early census results. Those consulted here include the 1860, 1870, 1880, and 1900 population censuses, and the 1860 and 1880 agricultural censuses. Of the State of California official records consulted, the most valuable were the various mineral reports and assessments. Many potentially valuable county documents also exist.

Finally, the various manuscript collections must not be overlooked. In the late nineteenth century, several Tehama County residents, along with other California residents, compiled scrapbooks of newspaper clippings and other notices. Many scrapbooks are housed in the Tehama and Shasta county libraries. In addition, the Tehama Library has an excellent local history index and vertical file. This index first of all provides a guide by topic or subject to the wide selection of primary and secondary sources in the library's collection. The vertical file contains a variety of newspaper clippings and brochures also organized by subject. At The Bancroft Library in Berkeley are H. H. Bancroft's scrapbooks, organized by county. The Bancroft Library also holds the Tehama County Pamphlet Collection which contains many pertinent documents. The California State Library in Sacramento has a Pamphlet File and a Pioneer Index. One of the finest collections of historical materials on northern California is located at the CSUC Library. Among other things, this library houses the Linginfelter Genealogy and Research Collection. Last but not least, the local Cottonwood Museum has a modest collection of documents, including a store ledger from the turn of the century showing the mercantile activities of the local residents.

TABLE 1

CULTURAL RESOURCE INVESTIGATIONS IN NORTH CENTRAL CALIFORNIA
(A PARTIAL LIST BY INVESTIGATOR AND YEAR OF FIELDWORK)

INVESTIGATOR(S)	SURVEY (NO. OF SITES)	EXCAVATIONS (SITES TESTED)	FIELDWORK (WHEN ACCOMPLISHED)	ETHNOGRAPHIC TERRITORY	LOCATION	PROJECT SPONSORS	REPORT AUTHOR(S)	REPORT YEAR
Merriam, Furlong	None	CA-SHA-48 CA-SHA-49 CA-SHA-50	1904	McCloud Wintu	Shasta Lake	U.C. Berkeley Paleontology Dept.	Putnam; J.Merriam	1906 1906 1915 1927
Golomshtok	Unknown	None	1922	River Nomlaki	Sacramento River near Red Bluff	U.C. Berkeley Anthropology Dept.	None	
Wedell	Unknown	CA-SHA-47	1935	Keswick Wintu	Sacramento River near Redding	U.C. Berkeley Anthropology Dept. River Basin	C.E. Smith; W.D. Weymouth	1952
?	?	Mound on lower Cottonwood Creek	?	Bald Hills Wintu	Cottonwood Creek near its junction with the Sacramento River	?	E.W. Gifford	1947
Weymouth, Smith, Beardsley	37	CA-SHA-20 CA-SHA-21 CA-SHA-22	1941-42	McCloud Wintu	Shasta Lake	U.C. Berkeley Anthropology Dept. River Basin	C.E. Smith; W.D. Weymouth	1952
Mohr, Fredrickson	26	None	1948	Hill Nomlaki	Black Butte Reservoir	U.C. Berkeley Anthropology Dept. River Basin	A. Mohr; D. Fredrickson	1949
Wallace, Taylor, Krieger, Pollock, Pollock, Jr., Kay	None	CA-SIS-13	1949-51	Shasta	Near Montague	U.C. Berkeley Archaeological Survey	W. Wallace; E. Taylor	1952
Baumhoff, et al.	None	CA-TEH-1	1952, 1954	Southern Yana	Mill Creek, Southern Cascade Mountains	U.C. Berkeley Archaeological Survey	M. Baumhoff J. Johnson J. Johnson	1955 1983 1984
Treganza	14 119	None None	1952	River Nomlaki Upper Trinity Wintu	Red Bank Reservoir, Red Bluff, Trinity and Lewiston Reservoirs	U.C. Berkeley Anthropology Dept., N.P.S.	A. Treganza	1952
Treganza	None	CA-TEH-58	1953	River Nomlaki	Red Bank Reservoir	U.C. Berkeley Archaeological Survey; N.P.S.	A. Treganza	1954
Baumhoff, et al.	12	CA-TEH-193	1956	Southern Yana	Paynes Creek, Southern Cascade Foothills	U.C. Berkeley Archaeological Survey	M. Baumhoff J. Johnson J. Johnson	1957 1983 1984
Treganza	None	CA-TRI-47 CA-TRI-49 CA-TRI-55 CA-TRI-58	1957	Upper Trinity Wintu	Trinity Reservoir, Trinity River	U.C. Berkeley Anthropology Dept., N.P.S.	A. Treganza	1958
Treganza	None	CA-TRI-45 CA-TRI-112 CA-TRI-113 CA-TRI-57 CA-TRI-70	1958	Upper Trinity Wintu	Trinity Reservoir, Trinity River	U.C. Berkeley Anthropology Dept., N.P.S.	A. Treganza	1959
Indian Studies Group, Shasta Historical Society	?	?	1959	Various in Shasta County	Shasta County		None	
Treganza, Heickson	20	CA-SHA-169 CA-SHA-170 CA-SHA-184 CA-SHA-205	1959	Keswick Wintu French Gulch and Keswick Wintu	Redding on Sacramento River, Whiskeytown Reservoir, Clear Creek	San Francisco State College N.P.S.	A. Treganza	SFSC #1 1960
Hullinger, Boyd, Hunt, Pritchard	None	CA-GLE-97	1961	Hill Nomlaki Wintun	Glenn-Newville Reservoir (proposed)	Indian Studies Group Shasta Hist. Soc.	None	
Treganza	5 Clear Creek 0 Happy Valley 1 Stillwater Ck.	CA-TEH-58	1962	Keswick Wintu Bald Hills Wintu Stillwater Wintu River Nomlaki Wintun	Shasta County, Clear and Cow Creeks, Tehama County, Sacramento River	San Francisco State College, N.P.S.	A. Treganza	1963
Dotta, Hullinger	None	CA-SHA-207	1963	Keswick Wintu	Sacramento River south of Redding	Northern California Archeological Society, Cal Trans	J. Dotta R. Hullinger	1964
Dotta	None	CA-SHA-237	1963	Keswick Wintu	Sacramento River south of Redding	Northern California Archeological Society, Cal Trans	J. Dotta	1964
Treganza, Aley	None	CA-SHA-49 Samwel Cave	1957 1963	McCloud River Wintu	Shasta Lake	San Francisco State College, Cave Research Assoc.	A. Treganza	1964

TABLE 1, Cultural Resource Investigations . . . (continued)

INVESTIGATOR(S)	SURVEY (NO. OF SITES)	EXCAVATIONS (SITES TESTED)	FIELDWORK (WHEN ACCOMPLISHED)	ETHNOGRAPHIC TERRITORY	LOCATION	PROJECT SPONSORS	REPORT AUTHOR(S)	REPORT YEAR
Treganza, Edwards, King	19	4	1965	River Nomlaki & Patwin, Hill & Konkow Patwin Maidu	West of Sacramento River from Red Bluff to Solano County	San Francisco State College, N.P.S.	A. Treganza R. Edwards T.F. King	1965
Chartkoff, Childress	65	None	1966	Hill Nomlaki Wintun	Stony Creek on Tehama-Glenn County Line	U.C. Davis and U.C.L.A., N.P.S.	J. Chartkoff J. Childress	1966
Durbin	None	CA-TEH-248 Bambauer Site	1965	Konkow Maidu	East side Sacramento River north of Chico	U.C.L.A. Department of Anthropology	None	
Burnham	None	CA-TEH-250 Case Site	1965	Near border of Yahi Yana, Konkow Maidu, River Nomlaki	East of Sacramento River 3 miles south of Vina	U.C.L.A. Department of Anthropology	None	
Hullinger	None	CA-SHA-491 Kett Site	1960-62	Keswick Wintu	1 mile west of Sacramento River northwest of Redding	Northern California Archeological Society Redding	R. Hullinger	
Von Werlhoff	None	CA-TEH-54 Paynes Creek	1948	Southern Yana	Inskip Hills east of Sacramento River	U.C. Berkeley Dept. of Anthropology	J. von Werlhoff	M.S. UCAS
Treganza	35 Whiskeytown 3 Redding	None	1958	French Gulch Wintu, Keswick Wintu	Whiskeytown Lake, Sacramento River	U.C. Berkeley Dept. of Anthropology	A. Treganza	1959
Arnold	19	CA-TEH-1350	1961	Modoc, Achumawi, S. Yana, Nomlaki, Patwin	Modoc, Shasta, Tehama, Glenn, Colusa, Yolo, Solano counties	Central California Archeological Found. Pacific Gas & Electric	B. Arnold	1964
Treganza	103 (26 recorded by Mohr and Fredrickson)	CA-GLE-10 CA-GLE-11 CA-GLE-15	1960	Hill Nomlaki Wintun	Black Butte Reservoir	San Francisco State College, N.P.S.	A. Treganza M. Heicksen W. Woolfenden	1969 1969 1970
Boyd	None	CA-SHA-46	Prior to 1959	Keswick Wintu	Sacramento River at Redding	Shasta College	W. Woolfenden	1970
Payen		CA-SHA-48	1965	McCloud Wintu	Shasta Lake	U.C. Davis	L. Payen	1970
Edwards	8	None	1967	River Nomlaki Wintun	Thomes Creek	U.C. Davis	R. Edwards	1967
Edwards	None	CA-TEH-235 CA-TEH-256 CA-TEH-257 CA-TEH-258 CA-TEH-261 CA-TEH-262	1968	River Nomlaki Wintun	Thomes Creek	U.C. Davis	R. Edwards	1969
Miller	None	CA-BUT-1 Patrick Site	1966	Konkow Maidu	Sacramento Valley near Chico	U.C.L.A., Chico State College	J. Chartkoff K. Chartkoff	1983
Chartkoff	None	CA-BUT-12 Finch Site	1967	Konkow Maidu	Sacramento River west of Chico	U.C.L.A., Chico State College	J. Chartkoff K. Chartkoff	1968
Johnson, K.	None	CA-BUT-233 Llano Seco Site			East side of Sacramento River	Chico State College	W. Dreyer	1984
Dotta	None	CA-SHA-286	Prior to 1968	Stillwater Wintu	Bella Vista east of Redding	Northern California Archeological Society?	R. Edwards	1968
Dotta	None	CA-SHA-288	Prior to 1968	French Gulch Wintu	Near French Gulch	Northern California Archeological Society?	R. Edwards; In Preparation	1968 1982
Edwards	None		Prior to 1969	All of Wintun territory	Sacramento Valley, Interior Coast Range, Klamath & Trinity Mts.	Center for Archeological Research, Davis	Mimeograph, R. Edwards	1968
Leonard	14	None	1967	Bald Hills Wintu	Contact Zone of NW Sacramento Valley, S. Klamath Mountains, Interior Coast Range	U.C.L.A., N.P.S.	N.N. Leonard III	1969
Clewett	None	CA-SHA-222	1969	Keswick Wintu	North end Sacramento Valley	Shasta College	E. Sundahl M.A.Thesis	1982
Johns, D.	8	None	1967	Hill Nomlaki	Interior Coast Range West side of Sacramento Valley	U.C.L.A., N.P.S.	D. Johns	1969
Kowta, M. Miller, D.	None	CA-BUT-7	1970	Northwest Maidu	Sierra Nevada Foothills	Chico State College	None	
Clewett	None	CA-SHA-484	1972-77	Stillwater Wintu	North edge of Shasta College Campus	Shasta College	None	
Johnson, J.	None	CA-TEH-169	1969	Southern Yana	Southern Cascade Foothills	Sacramento State College	J. Johnson	1983 1984
Johnson, J. Johnson, P.	4	None	1969	Southern Yana	Southern Cascade Foothills	Pacific Gas & Electric	J. Johnson P. Johnson	1969

TABLE 1, Cultural Resource Investigations . . . (continued)

INVESTIGATOR(S)	SURVEY (NO. OF SITES)	EXCAVATIONS (SITES TESTED)	FIELDWORK (WHEN ACCOMPLISHED)	ETHNOGRAPHIC TERRITORY	LOCATION	PROJECT SPONSORS	REPORT AUTHOR(S)	REPORT YEAR
Johnson, J.	None	CA-TEH-328	1969-70	Southern Yana	Southern Cascade Foothills	C.S.U. Sacramento	J. Johnson	1983 1984
Johnson, K.	?		1970	Between Keswick & French Gulch Wintu Groups	Southern Klamath, Interior Coastal Mts.	Chico State College, N.P.S.	K. Johnson	1970
Johnson, J., Lynam, Kenton	None	CA-TEH-372	1970	Southern Yana	Southern Cascade Foothills	C.S.U. Sacramento	J. Johnson	1983 1984
Journey	11	None	1971	Southern & Yahi Yana	Lassen National Park	N.P.S., Sacramento State College	A. Journey	1971
Johnson, P.	None	CA-TEH-331	1971	Southern Yana	Southern Cascade Foothills	C.S.U. Sacramento	J. Johnson	1983 1984
Johnson, K., Skjelstad		CA-SHA-177	1970-71	Between Keswick & French Gulch Wintu Groups	Southern Klamath, Interior Coastal Mts.	Chico State College, N.P.S.	K. Johnson L. Skjelstad	1974
Beck, Payen		CA-SHA-49	1971	McCloud Wintu		Sacramento State College	No report	
Johnson, J.	None	CA-TEH-600	1972-73	Southern Yana	Southern Cascade Foothills	Sacramento State College	J. Johnson	1983 1984
Johnson, J., Wiant	34	None	1974	Yahi Yana	Mill Creek, Southern Cascades	Almanor District, Lassen N.F., C.S.U. Sacramento	J. Johnson W. Wiant	1975
Johnson, J.	11	None	1973	Southern Yana, Yahi	Lassen National Park, Southern Cascade Mts.	N.P.S., C.S.U. Sacramento	J. Johnson	1973
Johnson, J.	None	CA-TEH-308	1967, 1972	Southern Yana	Southern Cascade Foothills	U.C. Davis, Sacramento State College	J. Johnson	1970 1983 1984
Johnson, J.	None	CA-TEH- 309	1967, 1972	Southern Yana	Southern Cascade Foothills	U.C. Davis, Sacramento State College	J. Johnson	1983 1984
Journey	34	None	1971-74	Southern Yana, NE Maidu, Atsugewi	Southern Cascade Mts.	C.S.U. Sacramento	A. Journey	1974
Johnston	36	Augering	1973-74	Southern Yana	Southern Cascade Foothills	C.S.U. Sacramento,	J. Johnston	1975
Johnson	44	CA-TEH-583, CA-TEH-594 Detailed surface collection	1975	Southern Yana, NE Maidu, Yahi Yana, Atsugewi	Southern Cascade Mts.	C.S.U. Sacramento, N.P.S.	J. Johnson	1975
Johnson, K.	None	CA-SHA-192	1976	Between Keswick & French Gulch Wintu Groups	Southern Klamath Interior Coast Mts.	C.S.U. Chico, N.P.S.	K. Johnson	1976
Johnson, K.	12	None	1975-77	Between Keswick & French Gulch Wintu Groups	Southern Klamath Interior Coastal Mts.	C.S.U. Chico, N.P.S.	K. Johnson	1977
Yatsko	2	SLSMP-2	1975	Between Bald Hills & Keswick Wintu	Northern Sacramento Valley	C.S.U. Chico, Simpson Lee Paper Company	A. Yatsko III	1976
Dohnke	?		1975	Yahi Yana	Southern Cascade Foothills	U. of Nevada, Reno	M. Dohnke	1975
Wilson	4	None	1977	Southern Yana	Southern Cascade Foothills	Pacific Gas & Electric	K.L. Wilson	1977
Jensen	39	None	1977-78	Bald Hills & Nomlaki Wintu	Interior Coast Range, Western side of Sacramento Valley	U.S. Army Corps of Engineers; C.S.U. Chico	P. Jensen	1978
Jensen	None	CA-SHA-543	1976	Stillwater Wintu	East Fork Creek NE of Sacramento Valley, Southern Cascade Foothills	U.S. Bureau of Reclamation, C.S.U. Chico	P. Jensen	1977
Clewett, Sundahl	None	CA-SHA-481	1973-74	Keswick Wintu	Northern Sacramento Valley, Churn Creek	Shasta College	E. Sundahl	1974 1976
Clewett	17	CA-SHA-471 CA-SHA-472 CA-SHA-474	1970-71	Stillwater Wintu Central Yana	Southern Cascades, Salt Creek, East End Northern Sacramento Valley	Shasta College Hallmark Investment Corp.	E. Sundahl	1979
McDonald	CRM Overview	None	1979	Modoc, Shasta, Karok, Wintu ?, New River Shasta	Klamath & Southern Cascade Mountains	Klamath N.F.	J. McDonald	1979

TABLE 1, Cultural Resource Investigations . . . (continued)

INVESTIGATOR(S)	SURVEY (NO. OF SITES)	EXCAVATIONS (SITES TESTED)	FIELDWORK (WHEN ACCOMPLISHED)	ETHNOGRAPHIC TERRITORY	LOCATION	PROJECT SPONSORS	REPORT AUTHOR(S)	REPORT YEAR
Jensen, Reed	CRM Overview	None	1978-79	Wintu, Yana, Achumawi	Northern Sacramento Valley, Southern Cascades	U.S. Bureau of Reclamation, Redding District, C.S.U. Chico	P. Jensen P. Reed	1979
Russo, Johnson, J., Decater, Meckfessel	89	CA-TEH-1979:5	1978-	Southern Yana	Southern Cascade Foothills	C.S.U. Sacramento	M. Russo	1980
Dotta	1	None	1979	Bald Hills Wintu	Interior Coast Range, west side Sacramento Valley	Shasta Dept. of Public Works, ARK II Redding	J. Dotta	1979
Clewett, Sundahl	10	CA-SHA-228 CA-SHA-229 CA-SHA-230 CA-SHA-231	1979-81	Between McCloud & Stillwater Wintu	Klamath Mountains Clikapudi Creek	Shasta-Trinity N.F., Shasta College	S.E. Clewett E. Sundahl	1980, 1981, 1982
Offermann, Orlins	38	None	1980	Bald Hills Southern & Yahi Yana, Northwestern Maidu	East edge of Sacramento Valley	U.S. Dept. of Energy Wester Area Power Adm. California Archeological Consultants	J. Offermann R. Orlins	1980
Theodoratus Cultural Research, Archaeolgocial & Environmental Services	CRM Overview	None	1981	Wintu, New River Shasta, Chimariko, Okwanuchu, Achumawi, Modoc	Trinity, Klamath, Southern Cascade Mts.	Shasta-Trinity N.F. Theodoratus Cultural Research	Theodoratus, et al.	1981
Wilson, K.	54	None	1974-78	Southern & Yahi Yana	Southern Cascade Foothills, East Edge of Sacramento Valley	C.S.U. Sacramento	K. Wilson	1980
Miller	1	None	1981	Bald Hills Wintu	North Fork Cottonwood Creek, Interior Coast Range	Cooksley Geophysics, Inc.	D.P. Miller	1981
Sletteland	3	None	1981	Bald Hills Wintu	Middle & North Fork Cottonwood Creeks, Interior Coast Range	Westlake Realty, ECO	T. Sletteland	1981
Jensen, White	None	CA-SHA-491	1981	Keswick Wintu	Rock Creek, Klamath Mountains	Redding District, U.S. Bureau of Reclamation, C.S.U. Chico	P. Jensen	1980
Wiant	420	None	1977-79	Southern & Yahi Yana	Southern Cascade Foothills	C.S.U. Sacramento	W. Wiant	1980
Johnston, Budy	CRM Overview	None	1982	Yana, Northeast Maidu, Atsugewi, Achumawi, N. Paiute	Southern Cascades, Modoc Plateau & Northern Sierra Nevada	Lassen N.F.	J. Johnston E. Budy	1982
Pippin, Hattori	Analysis of over 2000 surface artifacts	None	1980	Yana, Northeast Maidu, Atsugewi, Achumawi, N. Paiute	Southern Cascades Modoc Plateau & Northern Sierra Nevada	Desert Research Institute, University of Nevada, Lassen N.F.	L.C. Pippin E. Hattori	1980
Clewett, Spencer, Teach	None	CA-SHA-900	1981	Keswick Wintu	Northeast Sacramento Valley	Drake Homes Inc., Shasta College	S. Clewett E. Spencer F. Teach	1982
Clewett, Wohlgemuth	13	None	1980	Keswick Wintu	Northeast Sacramento Valley	Drake Homes Inc., Shasta College	S. Clewett E. Wohlgemuth	1980
Clewett, Sundahl	None	CA-SHA-266	1980	Keswick Wintu	Northeast Sacramento Valley	Shasta College	S. Clewett E. Sundahl	1981
George	Faunal Analysis	CA-SHA-266	1981	Keswick Wintu	Northeast Sacramento Valley	C.S.U. Chico	J. George	1981
Clewett, Sundahl	None	CA-SHA-992	1981	Keswick Wintu	Northeast Sacramento Valley	Stokes & Assoc., Shasta College	S.E. Clewett E. Sundahl	1982
Clewett, Foster	4	None	1980	Keswick Wintu	Northeast Sacramento Valley	Stokes & Assoc., Shasta College	S.E. Clewett A. Foster	1980
Garfinkel	None	Hotinakcohata Chimariko Village	1982	Chimariko	Cedar Flat, Trinity County	California Dept. of Transportation	A.P. Garfinkel	1982
Jensen	None	CA-TRI-205	1980		Trinity County	California Dept. of Transportation; C.S.U. Chico	P. Jensen	1980
Hughes	None	CA-SHA-475 CA-MOD-250	1970-82 1976	Wintu Achumawi	Klamath Mountains, Squaw Creek, Little Hot Springs Valley	U.C. Davis	R. Hughes	1982 1983
Cressman, L., Johnson, L., Johnson, J., et al.	930	39 test excavation sites	1939-74	Modoc, Achumawi, Atsugewi, Yana, Northern Paiute	Northeastern California	U.C. Davis C.S.U. Sacramento	J. Johnson	1983 1984

TABLE 1, Cultural Resource Investigations . . . (continued)

INVESTIGATOR(S)	SURVEY (NO. OF SITES)	EXCAVATIONS (SITES TESTED)	FIELDWORK (WHEN ACCOMPLISHED)	ETHNOGRAPHIC TERRITORY	LOCATION	PROJECT SPONSORS	REPORT AUTHOR(S)	REPORT YEAR
Greenway, G. Johnson, J. Johnston, J.	None	CA-TEH-290	1973, 1977, 1980	Yahi Yana	Mill Creek, Southern Cascade Foothills	C.S.U. Sacramento	G. Greenway	1982
Clewett, Sundahl, et al.	None	CA-SHA-475	1970-82	McCloud Wintu	Klamath Mountains	Shasta-Trinity N.F., Shasta College	S.E. Clewett E. Sundahl	1975
Farber, A., Neuenschwander, N.	None	CA-TRI-327	1983	Trinity Wintu	Klamath Mountains	Southern Pacific Land Company	A. Farber N. Neuenschwander	1983
Johnson, J.	411	None	1967-83	Southern and Yahi Yana	Southern Cascade Foothills	C.S.U. Sacramento, U.C. Davis	J. Johnson	1983 1984
Ritter	1	CA-SIS-266	1982	Shasta	Montague	B.L.M.	In Progress	
Nilsson	1	CA-SIS-900	1983	Shasta	Yreka	Siskiyou County Public Works	E. Nilsson	1983
Johnson, J. Dondero, S. Blount, C.	None	CA-TEH-10	1983	Hill Nomlaki	Black Butte Reservoir	C.S.U. Sacramento, Theodoratus Cultural Research, U.S. Army Corps of Engineers	J. Johnson S. Dondero C. Blount	In Preparation
Johnson, J., Theodoratus, D. Blount, C. Dondero, S.	74	None	1983	Hill Nomlaki	Black Butte Reservoir	C.S.U. Sacramento, Theodoratus Cultural Research, U.S. Army Corps of Engineers	J. Johnson D. Theodoratus C. Blount, S. Dondero A. Johnson, R. Begell, D. Seldner	1984
Farber, A., Neuenschwander, N.	None	CA-SHA-1481 Fay Hill	1984	Stillwater Wintu	Southern Klamath Foothills	B.L.M.	A. Farber N. Neuenschwander	1984
Baker, S.	None	CA-SHA-192 Old Tower Site	1984	French Gulch Wintu	Klamath Mountains	National Park Service	S. Baker	1984
Moratto, M. Goldberg, S. Raven, C.	None	CA-SHA-476 CA-SHA-511 CA-SHA-1170 CA-SHA-1169 CA-SHA-1176 CA-SHA-1183	1983	Trinity Wintu	Klamath Mountains	CALTRANS	P. Oman S. Goldberg J. Tordoff J. Kipps C. Raven K. Banks	1983
Vaughan, T.	None	CA-TRI-862	1983	Trinity Wintu	Klamath Mountains	B.L.M.	T. Vaughan	1984
Johnson, J Theodoratus, D.	283	CA-SHA-290 CA-TEH-748	1981-1982	Bald Hills Wintu	Northwest Sacramento Valley	U.S. Army Corps of Engineers	J. Johnson D. Theodoratus A. Johnson R. Begell C. Blount J. Tordoff S. Dondero	1984
Johnson, J. Tordoff, J. Dondero, S.	None	CA-TEH-387 CA-TEH-1196 CA-TEH-1197 CA-TEH-1211 CA-TEH-1232 CA-TEH-1264	1982-1983	Ball Hills Wintu?, Nomlaki Wintun?	Northern Coast Range	U.S. Army Corps of Engineers	In Progress	

CHAPTER 2

RESEARCH GOALS OF THE 1982 TEHAMA LAKE STUDY

In order to evaluate the significance of cultural resources and make recommendations concerning the mitigation of impacts, it is necessary to make explicit the underlying research design which guided the investigation. As Plog (1974:2-8) has pointed out, research goals, techniques of investigation and data collection are interdependent--not independent--considerations. Since Binford's pioneering work in the early 1960s, many professional archeologists have been in a quandary over the direction of their research (Binford 1962, 1964, 1965). There has been a realization that archeological research--both historic and prehistoric--should be guided by an explicit set of goals which would generate field methodology and analytical techniques. Recommended goals have ranged from broad spectrum issues to tightly defined regional and local research designs. Most recent archeological research has been oriented toward the study of population movement, settlement and subsistence systems, and social-political interaction spheres. The origin of the multiplicity of prehistoric cultural entities in California has long been of interest (Baumhoff and Olmsted 1963; Kowta 1975, 1978; Whistler 1977). Baumhoff's work (1963) concerning ecological determinants has also stimulated a considerable amount of research. Within the last ten years, attention has been directed toward prehistoric exchange systems, with an emphasis on obsidian trade networks (Earle and Ericson 1977; Ericson and Earle 1982; Jackson 1974; Hughes 1983). Prehistoric social and political relationships have also been explored, as represented by King's work in the San Francisco Bay region (1970) and the southern Sierra Nevada (1976).

Historic archeological research in California has dealt with several basic themes. Given most attention in the past were the Spanish, Mexican, and gold rush periods, with homesteading and post-1900 activities receiving little attention. Emphasis has been on the Spanish missions and presidios, but several of the ranchos were investigated during the course of state park development and urban renewal projects. Insights into the gold rush era of California history were provided through information generated by three state park studies regarding that period: Joss House near Weaverville; Malakoff Diggins near Grass Valley; and the U.S. Army Corps of Engineers' New Melones project near Sonora. Extensive excavations in the levels representative of the gold rush in Sacramento have also added to this knowledge. However, little attention has been accorded the peripheral mining and settlement areas, and the various ethnic groups associated with them. The nearby Dutch Gulch Lake research project was the first to attempt a detailed study of the site patterning of rural ethnic Chinese gold mining sites (Johnson and Theodoratus 1984a). Research on these historic resources has only been undertaken as a result of the construction of several large-scale reservoir projects, the 1969 Environmental Quality Act, and the 1973 Presidential Executive Order 11593 (1973).

Specific research goals concerning the historic archeological resources of the Tehama Lake project area were not proposed prior to the beginning of the 1982 fieldwork. Earlier work by Johns (1969) and Jensen (1978) did not include any

substantive historic or ethnographic research, and archeological studies prior to the 1981 investigation suggested that the historical resources found were not significant. Gold mining sites were largely absent from the area and only a few features related to early settlement were recorded. Although it was anticipated that several additional historic properties would be found, it would have been premature to propose detailed research goals until after the 1982 studies were completed.

1982 Research Goals

Much of the current archeological investigation in California and the Great Basin concerns specific regions. Bettinger (1975, 1977 and 1982), who has concentrated on the prehistory of the Owens Valley, and Thomas (1969, 1971, 1979a, 1983a, 1983b), who has conducted research for over a decade in the central Great Basin, are representative of this trend. Their research designs emphasize the use of ethnographic data, sample surveys, predictive models, and approaches associated with the "scientific method." Thomas (1979b:139-146) has stated that the goals of archeology are to construct cultural chronology, to reconstruct extinct lifeways, and define cultural processes. Research in the Monitor Valley has made explicit many of the paradigms that Thomas used in his investigation of past lifeways of the Shoshone Indians (1983a, 1983b), and which might be applicable to the Tehama Lake research.

The Dolores Archeological Project in Colorado has taken into consideration many of the recent developments in method and research design (Breternitz 1983). Five research domains, chosen in 1978, were applied: 1) economy and adaptation; 2) paleodemography; 3) social organization; 4) extra-regional relationships; and 5) cultural process. To further focus the research, five to 14 questions were developed within each of these domains. These were again divided into groups of specific questions to be addressed through the methodology. The degree to which any of these questions can be answered depends on two main factors: the availability of a resource base containing suitable information, and the selection of a research methodology capable of obtaining the desired data base. While other archeologists have stated the concerns of long-term projects in different ways than did Thomas and the Dolores Archeological Project staff, most studies revolve around the research domains they described.

Investigation of the cultural resources in the Dutch Gulch Lake project area during 1981 and subsequent field seasons has offered the opportunity to study many of the domains and questions outlined for the Dolores Archeological Project, emphasizing a regional approach and chronological controls. Similar goals were set for the 1982 Tehama Lake study, as follows:

I. Resource Assessment

A. What type of anthropological research has been conducted in this region and what is its applicability to the study area?

In order to assess what kind of research was applicable, it was necessary to learn the results of previous investigations. Research

questions could be formulated based on the considerable data that had been gathered in this portion of California. Archeologists, ethnographers, and historians who had conducted research in the region were contacted.

B. What is the nature of the existing ethnographic data?

A significant body of information has been gathered on the Native American Wintu who formerly lived in and near the project area (DuBois 1935), the Nomlaki Wintun who lived adjacent to the Wintu to the south (Goldschmidt 1951), and the Yana who lived to the east of the Wintu (Sapir and Spier 1943). These primary studies, and other less extensive investigations, allowed for the construction of trait lists suitable for determining historic and prehistoric cultural boundaries as well as for settlement, subsistence, and other cultural patterns.

C. What is the nature, availability and accessibility of prehistoric and historic archeological data?

The availability of archeological data was a primary focus of the 1982 research. Before long-term research goals could be developed, it was necessary to know what kinds of archeological sites existed, what condition they were in, and what kinds of data they were likely to contain. One of the main purposes of the fieldwork was to complete a 100 percent inventory of the cultural resources, thus negating the need for a sample survey strategy.

D. What is the extent and availability of historical documentation?

The historical researchers investigated the documentary records and the availability of knowledgeable consultants. Research was directed toward those resources with the potential, and those individuals with the knowledge, to aid in reconstructing the history of the project area. It was then possible to determine areas of historical significance which could be investigated through additional research.

II. Aspects of Regional Prehistory/Prehistoric Settlement Patterns

A. Hokan and Penutian Population Movements

The second major research goal was to investigate the movement of the Wintu and Nomlaki Wintun populations (of Penutian language affiliation) into north central California, and their displacement of the indigenous Yana (of the Hokan language family). The research design proposed by Kowta (1975) became the focal point of the initial prehistoric research. Of Kowta's 11 test implications, five (1, 2, 9, 10, 11 [Chapter 5, this report]) were determined to be applicable to the Dutch Gulch investigation. Based on data available in 1981 it was clear that this research domain could also be addressed

at Tehama Lake. Many investigators have speculated on why populations affiliated with the Hokan and Penutian language families occupied their historic territories, though few have had enough data to support their viewpoints and hypotheses (Baumhoff and Olmsted 1963; Gerow and Force 1968; Shipley 1978).

Ethnographic and archeological data suggest there are observable differences between Wintu, Nomlaki, and Yana cultures. The Southern Cascade Archeological Project, conducting research on the east side of the Sacramento Valley, provided comparative data on the Yana and their ancestors which were derived from over 40,000 acres of surveys, test excavations at 11 sites, and over 650 site records (Johnson 1983a). These data indicate that the prehistoric settlement patterns exhibited in the Tehama Lake area (occupied by the Bald Hills Wintu and possibly by the Nomlaki) were different from those of the Southern Cascade foothills (home of the Southern and Yahi Yana)--even though the plant communities and general environment are similar (Jensen 1978; Johnson 1983b). Johnson (1983c) and Johnston (1975, 1978) suggest that the Southern Yana and Yahi Yana had begun to abandon of the Southern Cascade foothills by A.D. 1500 due to pressure from the Wintu and Wintun. The Dutch Gulch and Tehama lakes studies should provide information on relevant Wintu "marker traits" (research begun by Sundahl [1982a]). By comparing marker traits through time it should be possible to define the boundary shift between these cultures within the last 500 years.

B. Bald Hills Wintu and Nomlaki Wintun Boundary Location

Another research domain concerned the boundary between the Nomlaki and the Wintu (Johnson 1983c). A careful study of the ethnographies of DuBois (1935) and Goldschmidt (1951) suggested many differences between the two groups. The historic boundary was originally thought to have been located between the proposed Dutch Gulch and Tehama reservoirs. Merriam (1967b:261), however, places the boundary on Red Bank Creek near Red Bluff. Ethnographic, archeological and historical research has the potential to illuminate the interaction between these two populations. According to Goldschmidt, the Nomlaki buried the dead in abandoned village sites; DuBois states the Wintu interred in unmarked cemeteries within 100 yards of their villages. It was expected that these differences could be approached through surface indications and auger data gathered during the survey. Goldschmidt also presents specific information on the arrangement of structures in Nomlaki villages. A similar plan of generalized house pit villages from the Dutch Gulch survey data could be drafted and compared to Goldschmidt's data.

Through careful attention to ethnographic and historical data and archeological survey, it should be possible to develop a predictive model of Wintu settlement, subsistence, and other cultural patterns. These models can then be used to test the Wintu/Wintun boundary suggested by DuBois, Goldschmidt, and Merriam, while at the same

time providing a firm basis for interpreting changes in Yana/Wintun boundaries and other interaction spheres.

While the foregoing research problems are only two of many that could have been investigated, there were good reasons for including them in the 1981 research proposal. First, and most importantly, they were relevant to the area and they could be investigated within the scope of work. Second, Kowta's research design was the only one at that time which had been developed and circulated widely among professional anthropologists in northern California. More recently, Ritter (n.d.) formulated an extensive archeological research design for the Redding area which contains numerous other potential avenues of study. It is this kind of approach that will provide a firm basis for reconstructing the prehistory of north central California.

C-074697

CHAPTER 3

1982 METHODOLOGY

Archeological Investigations

One of the main goals of the Tehama Lake cultural resources investigation was to perform an "Intensive Archeological Survey" of the 22,000 acres included within the project area. Later, approximately 35 linear miles of right-of-way for the proposed Bowman Road realignments was added to the study.

Prior to fieldwork and in conjunction with the draft report for the proposed Dutch Gulch Lake project, the principal investigator assembled and reviewed many of the reports on previous archeological investigations in north central California (Table 1). Attempts were made to obtain copies of unpublished manuscripts and other information from persons who had worked in the area. Several individuals familar with the archeological programs of both Shasta College and CSUC were contacted.

The California Archeological Site Inventory Information Center at CSUC was consulted for any information which might be relevant to the the cultural resources investigation in the project area. It was determined that no additional archeological work had occurred in the project area since Jensen's survey in 1978. The only archeological sites recorded at the Chico Information Center were those previously recorded by UCLA in 1967 (Johns 1969) and Chico in 1978 (Jensen 1978).

In addition, manuscripts and collections resulting from investigations of the prehistory of the Southern Cascade Mountains by UCB, UCD, and CSUS were used extensively. Information derived from the investigations of these three universities provides much of the comparative data relevant to the research design incorporated into this study. Of primary importance was the data obtained by project personnel during the Dutch Gulch Lake project of 1981-82 (Johnson and Theodoratus 1984a). Data from the test excavation of ten sites east and southeast of Red Bluff and over 650 site records from this same area were also used.

Historical and ethnographic studies that could shed light on the kinds of archeological sites expected to occur in the region were also examined. It was determined that, while a wide variety of prehistoric and ethnographic sites might be discovered, the historic resources would be restricted to the period of early settlement, rather than to the period of extensive mining manifested on the Middle and North forks of Cottonwood Creek in the Dutch Gulch Lake project area. Besides the several prehistoric villages and campsites already known to exist, only two historic occupation sites (a school and two cemeteries) had been recorded by archeologists. It was expected that, in addition, large numbers of other prehistoric villages and campsites, and evidence of early homesteading, ranching, and (possibly) depression era camps, would be located. Literature on the geology and flora and fauna suggested certain types of cultural resources which might be located during the investigation. Several types of sites or features were not expected because they had

not been documented in the research noted above. These included bedrock mortars, rockshelters, rock rings, and petroglyphs. No mining sites associated with either Euro-Americans or the Chinese were anticipated, although small exploratory diggings (that is, prospectors' test pits) were expected.

Based on the above information, a survey strategy was developed and provided to the representatives of the Corps prior to the beginning of fieldwork. The initial investigation was influenced by the following factors: 1) terrain and vegetation were quite variable from one part of the project area to another (Plates 1-3); 2) given the lack of auriferous deposits upstream on both major drainages, major gold mining systems were not present; 3) the number of prehistoric sites anticipated by previous investigators was considerably less than would be expected for the terrain and resource base; 4) previous investigators had confined most of their research to the land immediately adjacent to the stream channels; 5) the major archeological study had been performed at a time of year (January and February) when weather conditions were not conducive to easy access and coverage of the terrain; and 6) the amount of time and coverage devoted by previous investigators to finding and inventoring the cultural resources did not result in a complete sampling of the area.

With the experience gained from the Dutch Gulch research as background, the primary strategy was to start one survey crew in each of the two major types of terrain. In this way, personnel would know approximately the quantity and types of cultural resources to expect. At Dutch Gulch, survey crews initially concentrated on locating the cultural resources (not recording them until later); however, at Tehama all sites were recorded as they were discovered. The initial areas covered included a sample of all types of terrain so that it would be possible to predict how much time would be needed to complete the investigation. The work schedule developed around permission to enter land. Initially, work was accomplished with two crews of three to five surveyors each. The principal investigator rotated between crews to insure that areas were getting equivalent coverage. Each crew consisted of a crew chief, two to four archeological surveyors, and one Native American surveyor. Each crew had one member who was also a specialist in historic artifact identification. One of the crew chiefs (Terrance Schuster) was responsible for recording historic sites, while the other (Steven Dondero) was responsible for recording prehistoric archeological sites. Later, when excavations began at both the Dutch Gulch and Tehama project areas, John Dougherty and George Meckfessel assumed some of the crew chief chores. Initially, the principal investigator coordinated the fieldwork and contacted landowners to insure access. During the fall, these responsibilities were shared by the crew chiefs.

The work schedule consisted of ten days of fieldwork followed by four-day breaks. During each ten-day field session, certain crew members or crew chiefs would stay at the headquarters for one or more days to process and complete site records. Project headquarters was located in Bowman, less than two miles from the proposed dam axis.

Survey work was scaled down in September 1982 when excavations at CA-SHA-290/H, CA-TEH-748 and -1264 were started. Survey continued intermittently during October and November, ending in December due to wet weather. All property for which permission to enter had been obtained was surveyed during 1982.

In order to ensure adequate coverage of the terrain, surveyors used methods refined during the previous work at Dutch Gulch. Each member of the crew (other than the Native American participants, who declined the use of maps) were given copies of the 1" to 400' Army Corps maps. This tactic insured that all crew members would be able to record accurately any cultural features or artifacts that might be encountered, as well as enabling them to know exactly where they were at all times.

Many of the problems encountered on the south side of Middle Fork Cottonwood Creek at Dutch Gulch were magnified in the Tehama project area. The steepness of the hill slopes and the density of the vegetation in the numerous ravines, especially north of Dry Creek and south of South Fork Cottonwood Creek, presented difficulties. Often, flat ridge tops terminated in vertical drops of five to nine meters. Fortunately, most of the ridge tops within the boundaries of the study area had been cleared of normal, heavy vegetation in order to improve their potential for livestock grazing. The few roads from the bottom of ravines to ridge tops were quite steep, and often difficult for a standard two-wheel drive pickup to negotiate.

Survey would usually begin at the top of a ridge, from which point the surveyors would space themselves ten to 30 meters apart (depending on the density of the vegetation). They would then proceed down the ridge until it terminated above one of the major drainages or ended in an extremely steep slope. At that point, the crew members would descend into the ravine on one side of the ridge, cross to the next ridge, and survey going uphill away from the creek. Vegetation and slope permitting, crew members would examine the sides and bottoms of the ravines as they proceeded downhill.

Few archeological sites were identified on this terrain. The major cultural resources found were large isolated cores of a graywacke or other metamorphic material. These were discovered most often on ridge tops, and occasionally on slopes and in ravine bottoms (Chapter 4). This type of artifact had been expected, based on surveys of similar ridge tops in the Dutch Gulch area, in the Redding area, and elsewhere in the Coast Range (True, Baumhoff and Hellen 1979). Therefore, a considerable amount of time was spent determining the distribution of these artifacts.

The rest of the lands within the study boundaries consisted mainly of flat, sparsely vegetated creek terraces. In all open areas crew members maintained visual contact, walking transects parallel to one another ten to 30 meters apart. The surveyors were expected to zig-zag back and forth along their transects in order to ensure complete coverage of the area. Site record forms were identical to those developed for use on the Dutch Gulch project (Johnson and Theodoratus 1984a: Appendix D). These included scaled and detailed site maps, feature drawings, and locational maps. Completed records were filed in triplicate. Copies of the photographic records, contact sheets, black and white negatives, color slide and print film were submitted. No historic or prehistoric artifacts were collected for permanent curation.

Historic sites were examined carefully to aquire adequate information for determining their potential for possible nomination to the National Register of Historic Places. This work led to the recording of numerous features at many of the

sites, allowing the field crew to examine a wide range of artifacts useful in establishing the probable time period and function of these sites.

The archeological crew often met with landowners or caretakers prior to survey. Many of these owners and residents were able to provide locations of old homesteads and other historic sites, as well as prehistoric middens. In some cases, archeological sites may not have been located in the field without the landowners' help.

The number of archeological sites found during this research was not nearly as great as those recorded for the Dutch Gulch project area, but they were greater than earlier investigations had anticipated. Jensen (1978:132) had predicted that 21 new sites would be found. During the 1982 survey, 106 additional sites were actually discovered and recorded.

In consultation with Corps archeologists, it was decided that augering to determine the depth of the prehistoric midden deposits was a futile process which would needlessly raise fieldwork costs. After several days of attempts to use five different types of augers at midden sites in the Dutch Gulch project area, it was concluded that the sites were too rocky to be sampled in this manner. A phone call by the principal investigator to Richard Markley, the 1977-78 Dutch Gulch field director, confirmed that augers were unusable and that the depth of the sites had been determined by digging holes with shovels. Trowel holes were dug in order to determine the depth of the deposits of the Tehama Lake sites, and cut banks, rodent tunnels, and general topography were all used as guides. Most of the sites were less than one meter in depth, and could be sampled by digging a hole with a trowl, ten to 15 centimeters in diameter, until sterile soil was encountered.

Access to Project Lands

The large number of landowners in the area, and problems securing rights-of-entry, had a substantial impact on completion of the research. The majority of landowners involved were in the Mitchell Gulch spillway, Bowman Road realignment areas, and downstream from the dam. The scope of work required the archeological crew to contact every property owner, if possible. This task was made more difficult by the fact that many of them were absentee landowners, many did not have telephones, and current addresses were unknown. The largest unsurveyed parcel belongs to a family which controls a large amount of the bottomland along South Fork Cottonwood Creek. The other major parcel remaining unsurveyed belongs to an individual on Dry Creek. Many smaller parcels also remain unsurveyed due to various--presumably transient--problems with restricted access (Table 2).

Carbonate Testing for Chronological and Site Identification Purposes

Eighty of the 93 prehistoric midden loci were tested for carbonates. Each crew carried two 50 milliliter acid proof plastic containers (for holding the acid and water), and acid proof plastic eye droppers. Since the acid emitted damaging fumes, it and the water container for washing the eye dropper after each use were carried inside a heavy duty zip-loc bag to protect materials from damage. A few drops of

acid were usually sufficient to determine the presence of carbonates. This technique allowed extensive testing at a low cost. In many instances it was possible to determine the surface extent of a late midden deposit by testing out from the center of the site until no reaction was observed. It did not appear that colluvial activity had covered the edge of the sites or had interfered with the accuracy of the carbonate testing. At some sites, a few drops of muriatic acid applied to a small scraped area helped confirm that buried ash deposits were present in the bottom of house pits. If there was an observable effervescent reaction, the site was recorded as positive for carbonates, while sites not exhibiting this reaction were recorded as negative in the record.

The carbonate testing techniques used were first described by Johnston in his work in the Southern Cascade foothills (1975). He tested over 69 sites in the foothills on the east side of the upper Sacramento Valley and found that they could be ordered chronologically in relationship to one another. Johnston arrived at his results using sites which had been carbon dated, sites with features known to be late in time (house pits, dark black greasy middens), and sites suspected of having an older period of abandonment based on the light tan to reddish-brown color of their deposits. It was assumed that this lighter color was present because the charcoal and animal fats producing the black greasy characteristics of late middens had been leached out of earlier ones. Johnston found that the dark deposits reacted strongly when a ten percent solution of hydrochloric acid was applied to the surface, while the lighter-colored middens often did not react to the acid until 50 or more centimeters was reached, and some never reacted at all. He determined that carbonates found in middens leached out partly or completely, depending on how long a site had been abandoned.

Similar tests were performed on 71 prehistoric sites in the Dutch Gulch project area. Forty of the prehistoric sites tested had positive reactions, strengthening the impression (based on the number of sites with house pits and dark greasy middens) that the majority of sites had been occupied during the last 200 to 300 years. It also supported the belief that most of the main villages were on Middle and North Fork Cottonwood Creek, and not on the smaller auxiliary streams. Seventy-five percent of the sites with positive reactions were on the two main drainages, while a higher percentage of sites with negative results were on the smaller, peripheral streams.

This test will not work as a chronological indicator in many environments; effectiveness depends on the amount of rainfall, the nature of local soils and rocks, and, to a certain extent, the former occupants' activities. The area tested by Johnston had an average annual rainfall of 22.1 inches, with a range of from 7.5 to 44.2 inches (California State Department of Water Resources 1977). The Tehama Lake area has an average annual rainfall of 25 inches (U.S. Weather Bureau 1934). The soils associated with the Tuscan Formation to the east of Red Bluff range from slightly acidic to neutral, as is true of the Red Bluff, Tehama, and Budden Canyon formations found in the Tehama Lake area. Carbonate dating will not work in areas where the native soils are alkaline (calcareous). A quick field test on the first midden sites encountered at Dutch Gulch indicated that many of them were very alkaline (high in carbonates), while the surrounding soil did not react to a 30 percent solution of muriatic acid. (This is a product name for hydrochloric acid which comes in a 30 percent solution. The acid in this concentration is easier to obtain and yields

more consistent results than the acid in lower concentrations.) Later it was determined that the natural soil profile has been completely leached of carbonates; these are now concentrated on and in cemented gravels, often three or more meters below the surface of the ground. In many of the gulches and larger stream channels there are white layers of carbonates, a few centimeters thick, which react very strongly to the muriatic acid. At Tehama Lake, the majority of middens did not react when tested, suggesting that they are chronologically older than most of the sites at Dutch Gulch. At the present time, a more precise method for determining the magnitude of the carbonate reaction is being developed by the Chemistry Department at CSUS. This method should facilitate comparisons between sites and with surrounding native soils.

Ethnographic Investigations

After a review of extant literature regarding the Wintu and Wintun Indians of the project vicinity, it was possible to develop a plan for consultation. From these written sources a basic list of questions, names of places, and past Native American inhabitants of the Bald Hills area were assembled for use in preliminary field interviews. TCR compiled a list of potential consultants.

Ethnographic field trips were planned in conjunction with those of the historic component researcher, so that overlapping information elicited from the Indians and non-Indians might be correlated. This approach provided comparative data and new research directives. Field contacts were first arranged with older persons who had ties with--or knowledge of--the study area, and who lived nearby. Because the Tehama Lake area has few present-day Native American inhabitants, the interview phase of the research was limited, although every attempt was made to include as many persons as were knowledgeable about the area.

Interviews were open-ended and oriented to suit the expertise of the individuals. Topics explored with all consultants included their knowledge or memories of: 1) specific places used by Indians within or near the study area; 2) past and present traditions associated with the area; 3) materials which were used by the native people in the past or present; 4) ancestors or acquaintances residing in the area in the past; 5) history of the Indians in the project area; and 6) people and places in the Bald Hills and Nomlaki territories mentioned by DuBois (1935), Goldschmidt (1951) and other sources (e.g., U.S. Bureau of the Census 1880a and the 1905-1906 Kelsey census [Kelsey 1971]). An attempt was also made to discover the concerns of individual consultants regarding the potential disturbance of Native American cultural resources by proposed dam construction, and what recommendations, if any, might be offered as possible mitigation of these disturbances. Each consultant was also asked to suggest the names of additional persons who might be knowledgeable about the area's traditions, and who might have an interest in its cultural resources. The few available consultants were very cooperative and helpful in the research.

During fieldwork, coordination was maintained with the archeological component. Site information and potential consultants' names were exchanged as they were discovered by both components. Archeological findings were helpful in formulating interview questions about certain areas. Attention was also directed

toward census and other historical records in order to maximize historical information related by consultants. Information in the 1880 Census proved invaluable in augmenting consultants information, as well as in providing a source of names for use during interviews. Gradually, a portrait of the past Bald Hills and Nomlaki communities began to emerge. The priorities of the Native American population about the protection of cultural resources emerged during these interviews. In this regard, consultants were apprised of ongoing developments, such as the excavations at CA-TEH-387, -1196, -1197, -1211, -1232 and -1264, throughout the course of research.

Native American Consultation

During the first phase of research, Ed and Isabel Grant of the Wintu Educational and Cultural Council (WECC), were contacted. TCR had conferred with the Grants during earlier studies, particularly in the Dutch Gulch investigation, and their role as spokespersons in the Shasta County area was well known. It was through the Grants that much of the early fieldwork was facilitated. Ed Grant is uniquely qualified to assist in this work. Not only is he a spokesperson for the WECC and a major voice on Native American cultural preservation issues in Shasta County, but he is a descendant of two Bald Hills families with roots in the vicinity of Watson Gulch, and is well acquainted with many Wintu descendants from the study area.

Members of the Nomlaki community were also contacted, most of whom now live on or are affiliated with Grindstone Rancheria near Elk Creek. Although this rancheria is well south of the study area, it is believed that some residents are descendants of families from the vicinity of Paskenta, a Nomlaki settlement much closer to the proposed Tehama Lake project.

Several trips to the environs of Cottonwood and Red Bluff proved futile in attempting to locate Native American consultants familiar with the Tehama Lake area. Two potential consultants were eventually identified in the vicinity of Gerber. A woman of Yana descent, in her 90s, was contacted with the hope she might be able to identify other Native Americans near Red Bluff. She was very cooperative, but was unfamiliar with the project area and could provide no information regarding other potentially knowledgable people. The other was an individual of Nomlaki descent whose family had been moved to the Round Valley Reservation in the 1860s. He was not familiar with his people's past use of the project area. He eventually participated in the excavations during the 1982-83 tests at Tehama Lake.

Historical Investigations

The historical research team used a wide variety of documentary sources and as much oral history as feasible to reconstruct the history of the Tehama Lake project area. The purpose of the research was both to help identify historical resources and to provide a context within which their significance could be assessed. The historic areas referred to in the documentary record are summarized graphically in Chapter 7, which details the narrative history of the area. These findings were correlated with sites located by the archeological field survey team and the combined

information used to make assessments of significance and recommendations for historic resource management as given in Chapters 9 and 10 respectively.

The purpose of the historical investigations was to provide information on the history and historical resources of the project area. Researchers used two basic methods of data collection: documentary research (discussed in Chapter 1) and oral history interviews. Data were collected and analyzed to provide a context for interpretation and to help anticipate the locations of historical resources. Throughout the work, historical researchers maintained contact with the archeological field research team to share information and insights and to assure integrated assessment of findings.

Oral History Interviews

Oral history interviews were conducted for this research early in 1984. This technique was used primarily to gather data on some of the more recent historic sites encountered during the survey. In addition, during the 1983 fieldwork, informal interviews or conversations with residents of the area provided much interesting data. This modest oral history effort has also provided a good list of knowledgable persons who may be contacted during future phases of research.

Data Analysis

Data analysis for this study consisted primarily of synthesizing and integrating the bits and pieces of information gathered from numerous sources. Again, since a goal of this research was to identify and analyze site-specific historical resources, information on specific areas was emphasized. However, rather than being a simple index of sites, the final product of this research was designed to be an interpretive history, with site-specific information illustrating or providing the factual content to substantiate the themes. The data were thus grouped by chronological topics, as seen in Chapter 7. Fragments of information were layered and the results integrated with major subjects and interpretations of California history.

One part of the data analysis for this study was particularly unique and valuable, and deserves to be discussed in detail here: that is, the analysis of census materials. Both the population and agricultural censuses provide a wealth of detailed information about an area. For example, the population censuses list the inhabitants of each household by their place of birth, age, sex, occupation, and, frequently, relationship to the head of household, as well as other information. The agricultural censuses tell the value, type, cost, and other details of farm production. If the specific farms or household locations are known, it is possible to associate these details with a particular site. Residents' locations can be discerned by two types of documents: Public Land Records, which give the legal locational descriptions of the first private landowners' holdings; and county maps, which frequently show private holdings by owner. By layering the information, the historian is able to associate demographic and agricultural statistics with specific locations.

Not all area residents owned land. Even among those who did, not all were important enough to be listed in the agricultural censuses. In other words, the historian is not afforded the same wealth of information on every person or site. However, by first working with what is best known, it is possible to extrapolate to the less well-known. For example, by knowing where most of the residents numerated in the census lived, it was possible to estimate the locations of the remainder.

For those residents and locations which were found in most of the documentary records consulted, the wealth of information derived was astonishing. For example, for a specific archeological site, we can extrapolate the demographic characteristics of the group living there; length of residence (estimated by the time span during which they appear in local records and, frequently, by spacing and place of birth of their children), ethnicity and places of origin, social class (estimated by a combination of wealth, ethnicity, and occupation); types and quality of land improvement; and types and quantity of agricultural produce. Furthermore, by analyzing this information for several time periods, it is possible to measure changes in land use and economic well-being, and to estimate the dates of major improvements. When this information is combined with data from oral history consultants or other documentary records, it is possible to recreate not only the biographies of many area residents, but the "biographies" of many of the historic sites still visible today. These biographies are presented in Chapter 7.

The principal drawback with this method is that it is extremely time consuming. It is always frustrating to be at the end of the time period allotted for a study and only at the beginning of the intensive analysis of the topic. Given more time, it would be possible, with an analysis of county records, to deepen the insights provided by census analysis. In particular, it would be valuable to consult land transfer and tax assessment records, which would enable the historian to pinpoint more specifically the dates of property improvements, as well as their nature and quality.

LIST OF PLATES

1. General view of the Long Gulch portion of the project area. It is in this type of terrain that the majority of the unifacial core tool scatters were located.

2. Salt Creek drainage and CA-TEH-387; note the dark soil on the middle terrace. Vegetation of this plowed midden includes native tobacco (Nicotiana attenuata). Locus A is on the upper terrace near the edge of the cliff. Note the tree clearing activity on the ridges to the rear of the plowed upper terrace.

3. A general view of the terrain along Pine Creek, in the Bowman Road realignment portion of the project area.

PLATE 1

C-074709

PLATE 2

C-074710

PLATE 3

C-074711

TABLE 2

ACREAGE NOT SURVEYED DURING 1982 ARCHEOLOGICAL FIELDWORK

PARCEL NUMBER	ACREAGE SIZE	REASON NOT SURVEYED
003-170-028	170.21	Denied access
003-170-029	66.30	Denied access
006-040-013	158.26	Unable to contact
006-040-023	20.09	Denied access
006-040-025	15.00	Denied access
006-040-026	9.37	Denied access
006-040-027	3.42	Denied access
006-230-010	2.00	Denied access
006-240-002	10.53	Denied access
006-240-005	11.43	Denied access
006-240-008	69.70	Denied access
006-240-009	53.42	Denied access
006-250-002	7.05	Denied access
006-250-003	7.05	Denied access
006-250-004	7.05	Denied access
006-250-005	7.05	Denied access
006-250-006	7.36	Denied access
006-250-007	7.36	Denied access
006-250-008	7.05	Denied access
006-250-009	7.05	Denied access
006-250-010	7.05	Denied access
006-250-011	7.45	Denied access
006-300-001	7.94	Denied access
006-300-002	20.85	Denied access
006-300-004	10.02	Denied access
006-300-005	5.00	Denied access
006-300-007	5.38	Denied access
006-300-008	4.59	Denied access
006-300-009	7.75	Denied access
007-100-007	120.00	Denied access
007-100-016	120.00	Denied access to floodplain only due to agriculture
007-100-017	5.00	Denied access to floodplain only due to agriculture
007-100-023	158.35	Denied access
007-100-033	120.00	Denied access
007-100-034	120.00	Denied access
007-400-006	40.00	Denied access
TOTAL:	1351.51	

Table 2, Acreage Not Surveyed . . . (continued)

PARCEL NUMBER	METERS OF ALIGNMENT*	REASON NOT SURVEYED
006-070-004	213.00	Unable to contact
006-070-005	305.00	Unable to contact
006-070-006	396.00	Unable to contact
006-070-010	213.00	Unable to contact
006-070-012	122.00	Unable to contact
006-070-020	107.00	Unable to contact
006-070-027	30.00	Unable to contact
006-070-028	30.00	Unable to contact
006-080-002	107.00	Unable to contact
006-080-003	107.00	Unable to contact
006-080-005	46.00	Unable to contact
006-080-006	145.00	Unable to contact
006-080-007	91.00	Unable to contact
TOTAL:	1912.00	

* Bowman Road Realignments

CHAPTER 4

ARCHEOLOGICAL FINDINGS: 1982

Archeological Data Recovered

The archeological sites located in the Tehama Lake area represent a somewhat restricted range of past human activities. The majority of the site types encountered were predicted based on the information available from archeological, historical, and ethnographic sources. The background research undertaken for the Dutch Gulch project also produced a large amount of data concerning the Tehama area.

The expectation that a great number of prehistoric sites would be encountered proved correct, though not to the degree noted in the Dutch Gulch project area (Johnson and Theodoratus 1984a). However, the size and density of the Tehama sites is not unusual for the northern Sacramento Valley region (cf. Childress and Chartkoff 1966; Treganza and Heickson 1969; Bard, Busby and Kobori 1983; Johnson and Theodoratus 1984a).

A major factor narrowing the range of expected historic sites was the discovery that the two major drainages in the survey area, South Fork Cottonwood Creek and Dry Creek, originate in the non-auriferous North Coast Range. This virtually eliminated the possibility of encountering sites related to gold mining--a fact which was substantiated by both the historical record and the foot survey.

A brief reconnaissance of the project area in early 1982 by the principal archeologist added to the developing perspective on the potential of the survey area. Consequently, the archeological crews knew what types of sites to expect prior to entering the field. What was not possible to determine without fieldwork was the condition and potential significance of the resources, as well as the relative frequency of certain site types.

Prior survey and analysis of site types and frequencies by Jensen predicted that an additional 21 prehistoric sites would be located by a 100 percent survey (1978:132). This was based on a 10 percent stratified random sample of three topographically-defined survey universes. The 1982 fieldwork located and recorded 122 sites, of which 112 were previously unrecorded. Ten had been previously recorded by Jensen (1978) and Johns (1969). Three previously recorded sites have been excised as a result of boundary shifts and are not included in these report totals. Of the 122, 89 were prehistoric and 33 historic (Plates 4-11; Maps 2-9; Tables 3 and 4). In addition, nine of the prehistoric resources also had non-Indian historic components.

Several locational discrepancies between the 1969 and 1978 survey records were resolved. The 1982 field crew was unable to locate the midden deposit described by Johns at CA-TEH-385H (Durrer Ranch) (1969:6), but was able to extend the limits of CA-TEH-384, a widespread nearby lithic scatter, to cover the ranch area.

CA-TEH-385H and CA-TEH-839H (Rosewood) were rerecorded to reflect recent modifications of their features. The CA-TEH-386 record was updated, although the record required little revision. CA-TEH-841H (Farquhar School) was not updated, as the 1978 site record was adequate. The record for CA-TEH-387 was revised to include the recent destruction by bulldozers.of the majority of the site. CA-TEH-388 was updated, as the locational description and maps in the 1978 report and site record were erroneous. CA-TEH-837/H was updated to incorporate a nearby, previously undescribed midden and homestead feature. At CA-TEH-838, a second midden deposit and related lithic scatter were recorded. CA-TEH-381, -383, and -836 were outside the project area as currently defined, and thus were not revisited.

Besides sites, 185 isolated artifact forms were submitted, representing 21 historic and 164 prehistoric artifact locations (Tables 5 and 6). The prehistoric locations include 448 artifacts. Historic isolates range from one artifact to recent dumps containing numerous artifacts.

Prehistoric Sites

Of the 89 cultural resources in this category, 63 include one or more middens, 20 are lithic scatters without middens, and six are unifacial core tool groupings. Twenty-one of the midden sites had multiple deposits (Table 7), which ranged from two to four separate middens in proximity to one another. At three of these the middens representing one deposit had been physically segregated by current or past Highway 36 road alignments. At the other locations the middens represented separate activity areas resulting from prehistoric use. It is possible that the different deposits at these sites might represent temporal differences, or they could represent the location of special activities, such as menstrual lodges, as suggested by Goldschmidt (1951:319). Some investigators might have assigned all of the separate midden deposits individual site numbers, rather than treating them together as in the current study. For this reason, at sites with multiple deposits, each midden deposit was treated as a separate entity and given a different locus designation. In this way, future investigators can treat the deposits as separate entities if they choose. For example, recent test excavations at loci A, C, and D of CA-TEH-748 in the Dutch Gulch area have indicated that all loci have portions of the deposit which are contemporaneous, while part of Locus A may be considerably older.

The distribution of prehistoric resources throughout the project area may be characterized as a series of small, light brown midden deposits with encircling lithic scatters. Between these sites are sparsely distributed lithic artifacts whose characteristics seem to correlate with the types of rock in the drainages and terrain where they are located. Along the lower terraces on South Fork Cottonwood Creek, and all major terraces on Dry Creek, are numerous chert cores and flakes. Their occurrence often made the determination of site limits problematic. Where convenient, lithics in close proximity to middens were assigned to those sites. Concentrations of lithics along terraces where no middens were present were grouped as lithic scatters (for example, CA-TEH-384, -1216, -1228, -1247 and -1271). The remaining artifacts were recorded as locations of human behavior and were often grouped together by topography onto one record form. For example, six chert cores and flakes located on a terrace bounded by two intermittent drainages were recorded

together and given one isolated artifact grouping number (CSUS-256-PI). Artifacts located in the steeply eroded and dendritically dissected ridges south of Dry Creek and along the upper terraces of South Fork Cottonwood Creek tended to be composed of graywacke or other coarse-grained metamorphic cobbles. These cobble cores were (usually) unifacially flaked and are inferred to be tools, though their supposed function(s) are unknown. Similar specimens have been observed to the south at Lake Berryessa (True, Baumhoff and Hellen 1979). Due to their large numbers and generally disseminated nature, many were recorded as isolated groups. Again, topographic limits to the groupings were often determined by the intermittent drainages separating the steep, sloped ridges. Where artifacts were closer together (one per two or three acres), site record forms were completed. Given the distribution of the artifacts, this approach to recording these resources was deemed most appropriate, as it enabled the survey crew to cover the area in a more timely fashion, eliminating the necessity of filling out hundreds of isolated artifact forms.

Middens

The 1978 study (Jensen 1978:140) indicated that four classes of aboriginal sites had been noted. Of these, the most frequent class was the midden. It was further noted that about one-half of these sites had house pit depressions on the surface, the remainder did not. The study also indicated that virtually all of the sites with middens were located on the lower terraces adjacent to the main stream, and that few sites of any type were found on higher terraces, surrounding hills, or small intermittent creeks. According to that study, the development of a discrete site typology would not be possible until completion of the intensive survey (the subject of the current report). The archeological sites described below and detailed in Appendix A contained midden deposits somewhat variable in size and surface characteristics. While concentrated on the lower stream terraces, they also occurred on several small gulches and higher terraces.

Archeologists often attempt to classify archeological sites into different types based on size and other known characteristics. As can be seen in Table 8, the middens ranged from very large (CA-TEH-1196, Locus D at 6960 cubic meters) to very small (CA-TEH-1244, Locus B at three cubic meters), with an average volume of 526.5 cubic meters. The only clear break in size occurs between the two largest middens and the remaining 91. If these two large middens are removed from the sample, the average size is 1320 square meters. Sixty-five middens (69.9 percent) are smaller than the average size, and 79.5 percent are smaller than 2000 square meters.

The middens ranged in length from less than five meters to over 250 meters. Only the deposit at CA-TEH-387 was more than 120 meters long, primarily the result of bulldozer disturbances. Fifty-nine percent of the middens were less than 45 meters long, 78.4 less than 60 meters, and 88 percent under 80 meters. In depth, 62.6 percent were 30 centimeters or less, 28.9 percent between 30 and 55 centimeters, and only 21.6 percent from 56 to 150 centimeters. Ten middens were so disturbed by bulldozer activity as to preclude accurate depth measurements. The average midden was approximately 48 meters long, 26 meters wide, and 41 centimeters deep (Table 8).

CA-TEH-1211 is typical of the midden deposits within the project area. It is medium to dark brown in color (depending on moisture content), fairly friable, slightly ashy, alkaline, has good preservation of bone, and contains a large amount of rock (25 percent by volume based on 1983 excavations). For the most part, the midden passed easily through the one-eighth and one-fourth inch screens used during the testing of the deposit. Only the clayey sterile soils slowed the screening process. The rock was mostly fire-fractured, and constituted about 20 percent of the volume excavated. This may be compared with CA-SHA-290/H on North Fork Cottonwood Creek, where approximately one-third of the 40 cubic meters excavated was fire-fractured rock, and only 18 to 22 buckets of material remained to be screened in a one by two meter, ten centimeter excavation level. On the other hand, CA-SAC-267 in the Sierra Nevada foothills yielded about 32 ten-quart buckets of material to be screened for similar sized levels. Excavation at several sites in the Southern Cascade foothills southwest of Red Bluff have also yielded large amounts of rock more similar to the Tehama sites than to those in the Dutch Gulch area. Although rock content was less on Tehama sites, it will be a definite factor to be considered in any major excavation program. Also of significance for any further excavation program is the increased amount of pea gravel in the Tehama middens, which makes sorting difficult. Again, this is in direct contrast to Dutch Gulch sites, such as CA-SHA-290/H, where very little remains to be sorted in the screens after the fire-fractured rock is removed. The late deposits sampled at CA-TEH-748 yielded similar quantities of rock. Thirty-five percent of the deposit, however, contained a much smaller quantity of rock, was compacted and more difficult to screen, and may represent an older deposit.

Sixty-three sites had associated middens. Of these, 21 had more than one deposit, and all had associated lithic scatters. Of the 93 separate deposits represented, 81 were tested for carbonates. Of these, 74 (91.3 percent) had negative reactions while the remaining 8.7 percent had positive reactions. The absence of carbonates at or near the surface in such a high percentage of middens (79.5 percent of the total) suggests that the Tehama Lake area was largely abandoned late in prehistory.

Other factors beside carbonates can be used to suggest the possible occupation period of many of the sites (Table 8). The presence of house pits, projectile points, and ground stone; the relative quantity of fire-fractured rock; and the color of the deposits can all be used to predict temporal affinities of the various midden deposits. The presence of house pits at 20 (31.7 percent) of the middens suggests that a small proportion of the sites were occupied in late prehistory. However, it must be pointed out that disturbances to sites were widespread throughout the project area, especially along South Fork Cottonwood Creek. In fact, 81 (79.4 percent) of the 102 house pits were recorded along Dry Creek, with the remainder on Salt and South Fork Cottonwood creeks. This makes the sample derived by this study hopelessly skewed with regard to this feature. Unlike Dutch Gulch Lake where sites with house pits usually had high carbonate levels, at Tehama Lake 23 midden deposits with house pits contained no carbonates near the surface.

Most of the middens were light to medium brown in color when damp, while a few were darker colored. Some sites exhibited thin, rocky deposits that looked darker than oak duff, but much lighter than the vast majority of the middens (Table 9).

Most middens have moderate quantities of fire-fractured rock. The presence of large quantities of this type of rock throughout northern and central California is generally associated with the practice of stone boiling in baskets. Since this practice did not become well established until within the last 1500 to 2000 years, the sites at Tehama with smaller quantities of fire-fractured rock suggest the presence of older prehistoric deposits (Sundahl 1982a; Treganza and Heickson 1960).

The presence of 25 hopper mortars, 45 flat-ended pestles, 11 manos and four metates at 38 sites and in 11 isolated locations (Table 10), suggests that many sites have more than one temporal period represented. It has been suggested (Clewett 1977; Clewett and Sundahl 1980, 1981, 1982a, 1982b, 1983; Sundahl 1982a) that hopper mortars and flat-ended pestles dating from within the last 1500 years were preceded by bowl mortars, manos and metates. Johnson (1984b) has indicated that hopper mortars date from perhaps as early as 2000 years ago in the Southern Cascades foothills to the east, while manos and metates occur throughout the last 4000 years. Test excavations at the Tehama area sites in 1983 yielded only hopper mortars and flat-ended pestles.

The 14 projectile points found on the surface were at 12 middens and two isolated locations (Table 11). One specimen came from a very large, rocky, black midden deposit that tested positive for carbonates (CA-TEH-387). This specimen is representative of the Gunther-barbed series, the major point tradition of the last 1500 to 2000 years in the Redding area. Nine other specimens, though not of the "classic" Gunther-barbed style, were small, contracting-stemmed, made of obsidian, and suggestive of that artifact type. One was a large-stemmed chert form suggestive of some antiquity (CA-TEH-1217), while the other chert point, though missing its base, is also reminiscent of chronologically earlier forms.

The test excavations at CA-TEH-387, -1196, -1197, -1211, -1232, and -1264 largely yielded the late point types, as well as a few other specimens which may date earlier in time. (The results of the analysis will be detailed in a later report.) This offers further evidence of more widespread early prehistoric occupation of the Tehama area than has been documented for the Bald Hills region to the north. At the same time, a sandstone shaft abrader and prepared fire hearths reinforce the presence of late occupation in the area.

Based on the above information, it is evident that the majority of the midden deposits contain scattered evidence of the use of the Tehama Lake area within the last 1500 to 2000 years. The presence of large amounts of fire-fractured rock, dark colored middens, house pits, carbonates on or near the surface, Gunther-barbed projectile points, and mortars and pestles clearly indicates that some of the sites were occupied within the last 200 or 300 years. The presence of less fire-fractured rock, lighter colored middens, no carbonates on or near the surface of most of the middens, manos and metates, three and possibly four older projectile point forms suggests that some sites were probably occupied earlier than 300 years ago and possibly as early as 2000 years ago, but apparently not with the intensity or population present later in prehistory.

The number and size of many of the deposits suggest that a relatively small population lived on this portion of the South Fork Cottonwood Creek and Dry Creek

during the last several hundred years. Based on topography and excavation data, it appears that this group was peripheral to the larger Bald Hills Wintu population living to the north on the Middle and North forks of Cottonwood Creek (Johnson and Theodoratus 1984a).

Lithic Scatters

Thirty-eight sites (43 loci) consisted of lithic scatters only (Table 12). They were characterized by as few as seven flakes to as many as 100 or more specimens, including cores, core tools, and ground stone. Hopper mortars were found at five sites, pestles at four, manos at three, and a metate at one.

Most of the artifacts found at these sites were cores and flakes from locally obtained cherts and other Franciscan-derived materials. Chert artifacts usually consisted of multifacial cores with multidirectional flake removals and large secondary decortication and tertiary hard hammer percussion flakes. Obsidian was not observed to occur on lithic scatters.

Only slightly less frequent were the graywacke cobble core tools scattered throughout the ridges above the recently formed alluvial terraces. Although 160 specimens were recorded as isolated artifacts, 166 tools representing the most dense and topographically clustered were recorded as lithic scatters. These unifacial core tools were not expected in such frequency as they occurred. They are characterized by their location in the steeply dissected ridges above the alluvial floodplains and terraces on South Fork Cottonwood Creek, by their dissemination (only one or two artifacts per 20 to 30 acres), and by their lack of associated artifacts or features. Most were composed of graywacke or other metamorphic materials. Generally, each tool appears as a 15-to-20 centimeter long, 10-to-15 centimeter wide, and seven-to-ten centimeter thick ovate river cobble, usually with one to six flakes removed unifacially from one end. The resulting edge often appears rounded or slightly battered.

Features

Human Remains

Prior to the survey, it was assumed that Goldschmidt's position that the Nomlaki and other Wintun groups buried their dead 200 to 300 yards from their villages was accurate (1951:379). This corresponded to DuBois' contention that the nearby Bald Hills Wintu buried their dead at least 100 yards from their villages (1935:64). However, human bone was located on the surface of three middens in Bald Hills territory, and burials were discovered at CA-TEH-748, CA-SHA-290/H, and 1144/H. Consequently, human bone was expected to be found on the surface of at least a few middens in the Tehama project area; however none was noted on any of the sites during the survey. Even though a large number of middens, especially on South Fork Cottonwood Creek, were badly disturbed by recent land clearing, and one large site (CA-TEH-387, Locus B) was turned virtually upside down by bulldozers, no human remains were found.

Numerous burials have been removed from CA-TEH-58, a large site near Red Bluff (Treganza 1954). Burials were also excavated from CA-GLE-10/H, a large village in the heartland of the Hill Nomlaki along Stony Creek to the south (Woolfenden 1970). In 1983 at CA-TEH-10, 167 burials were salvaged from a Nomlaki cemetery peripheral to a large midden on the banks of North Fork Stony Creek (Johnson 1984a). During the 1983 test excavations within the Tehama project area, a single child burial was found at CA-TEH-1197 on Dry Creek; and disarticulated human bone was noted at CA-TEH-1196, Locus C, and CA-TEH-387, Locus A (Judy D. Tordoff, Personal Communication 1983). Consequently, there are likely to be human burials in the middens within the Tehama Lake project area.

House Pits

House pits were found at 22 sites (27 loci) (Table 13). Twenty sites were middens and the remainder were lithic scatters. Of the 94 structural pits, all were five meters in diameter or less. These pits probably represented circular, conical-bark, single-family dwellings and storage shelters typical of the Bald Hills Wintu or Nomlaki Wintun. No structures were noted that were large enough to be the remains of chiefs' dwellings, sweathouses, or the large dance houses known for the Nomlaki heartland to the south and the Bald Hills Wintu to the north.

The majority of house pits were circular, ranging from 2.5 to four meters in diameter, and from ten to 35 centimeters in depth (Table 13). The number of pits at each site ranged from one to 14, with only three sites having more than eight.

House pits were located on the Dry Creek drainage, most towards the upper (west) end of the project area. The virtual absence of this type of site from South Fork Cottonwood Creek can undoubtedly be attributed to the massive alteration of the terraces along this drainage by recent Euro-American land clearing.

Artifacts

Ground Stone

During the course of the 1982 fieldwork, 88 ground stone implements were noted (Tables 10, 14). These occurred at 37 sites, and in 11 instances they were in isolated contexts. They represent five distinct artifact types, with two examples of combination tools (Plate 9). Ninety-nine percent (87) were food processing implements. By far the most numerous were the partially shaped flat-ended pestles (45) and hopper mortars (25), while manos (11) and metates (4) apparently were not used as much, or may represent earlier cultural expressions not as evident in the area. The presence of one combination pestle/mano and one hopper mortar/metate suggests these artifact types were contemporaneous, or perhaps the latter mortar/pestle manufacturing populations used already existing artifacts to suit their own purposes.

Of the ground stone types mentioned above, only hopper mortars and pestles have been ethnographically identified in Bald Hills Wintu and Nomlaki territory (DuBois 1935:126-127; Goldschmidt 1951:421-422). However, manos and metates are

known from sites excavated along Stony Creek, as well as from those tested within the project area (Woolfenden 1970; Johnson and Theodoratus 1984b).

The food grinding implements represent a variety of patterns. Forty-five tapered and cylindrical flat-ended shaped pestles were found at 26 sites and in two isolated cases (Plate 9). The 25 flat sandstone slab hopper mortars occurred at 16 sites and in six isolated locations. The 11 manos were at seven sites, while the four metates were found at three sites (and in one place away from a site). The pestle/mano combination tool was at a site; the hopper mortar/metate was isolated.

The hopper mortars at Tehama Lake are very similar to those found at Dutch Gulch and elsewhere in Wintun territory, and quite distinct from those across the valley in Southern and Yahi Yana territory. The Yana selected flattened andesitic river cobbles, which were eliptical in cross-section and round perpendicular to the face containing the worked pit. In addition, the mortar pit was almost always from 15 to 18 centimeters in diameter and from two to five centimeters deep, and had been shaped by pecking before use. The Wintu people living along the Sacramento River and to the east and north of the Bald Hills also selected water-washed river cobbles. The hopper mortars found in the Tehama Lake area, however, were all of flat, unshaped blocks of sandstone, which had been acquired locally from the stream beds. The mortar pits were of no particular size, quite shallow, and appeared to be the result of use--apparently not started by pecking. These hopper mortars ranged in size from 20 to 35.5 centimeters long, 14 to 25 centimeters wide, 4.5 to 12.5 centimeters thick, with pits from 9 to 16 centimeters in diameter and from .5 to 1.7 centimeters deep.

The 45 pestles found were essentially the same as those described by other investigators in the Redding area (Treganza 1958, 1959, 1961, 1963; Clewett and Sundahl 1981, 1982a, 1983; Dotta 1964; Dotta and Hullinger 1964; Jensen 1980; Johnson and Theodoratus 1984a). The pestles fell into two quite distinctive types. A few specimens were round in cross-section, tapered, and completely shaped by pecking. These were made from a variety of stone, with sandstone and other locally available rocks most commonly used. Where discovered whole, most of this type of pestle were relatively short, often less than 15 centimeters long and five or six centimeters in diameter on the used ends. The second and most common type of pestle consisted of flat-ended, partially shaped river cobbles. These artifacts bear little resemblance to the well-made pestles found at Dutch Gulch, CA-TEH-58 at Red Bluff, or Black Butte Lake near Orland. They apparently represent tools used strictly for utilitarian purposes. One pestle had been used as a mano on one side.

Four metates were found, one each in three different sites and one in an isolated location; all were made from unshaped sandstone slabs quite variable in size (Tables 10, 14). The metates ranged from four to 12 centimeters in thickness, and the largest was 22 by 50 centimeters. None of the metates had shaped basins; the grinding surfaces were either flat or only slightly concave. In all but one case, the ground area covered one portion of the flat side of the rock.

Manos were represented by 11 hand-sized cobbles which were scattered among seven sites (Tables 10, 14). They were unshaped oval cobbles, ranging from seven to 13.3 centimeters long, five to 9.4 centimeters wide, and 2.5 to 5.6 centimeters thick.

Of the 11 cobbles, eight were composed of sandstone, one of diorite, and two of unidentified materials. All manos exhibited unifacial use only.

Hammerstones were rarely found on the surface of sites compared to the quantity of chipped stone observed, probably due to difficulties in identification during survey. Several were found during the test excavations in 1983 and will be detailed in a later report. Those observed were all from water-washed cobbles and represented by a wide variety of configurations, materials, and sizes. The modification usually consisted of one or more pitted areas on the surface of the cobble.

Miscellaneous ground stone consisted of two polished and ground slate pebbles. None of these specimens is assignable to any specific type because of their fragmentary nature and/or lack of specific characteristics.

Chipped Stone

Flakes were the most commonly found chipped-stone artifact, noted at all 93 middens and at 32 of the 38 lithic scatter sites, with 147 grouped into 74 isolate clusters. Most of these specimens were the result of primary reduction activities, and had cortical surfaces. Local cherts (particularly green colored) were the main lithic materials noted, while locally derived quartzite, metavolcanics, basalt, and quartz were also noted. The only imported material observed was obsidian. It occurred rarely, usually in the form of one or two small resharpening or pressure flakes on middens.

All sites and 116 isolated artifact locations contained cores. It is signficant that almost twice as many isolated cores as flakes were found. This is probably because of their large size, which made them easier to find in the tall, dry grass. Of the 274 isolated examples, 160 were observed to be unifacially flaked. Large numbers of unifacial cores were found on ridge tops and high terraces, very few associated with middens (Plate 9). The recent test excavations at both Tehama and Dutch Gulch project areas confirmed that, while large numbers of cores occurred in middens, they were bifacially flaked and usually smaller than the specimens found on ridge tops and steep hillsides. The large cores found away from the middens probably represent some type of resource procurement activities carried out in locations removed from villages. This pattern was also suggested by the survey results at the Dutch Gulch Lake project (Johnson and Theodoratus 1984a).

The third most common form of chipped stone was the projectile point. This type of artifact was noted at only one site during the 1978 investigation (Jensen 1978:68). Fourteen specimens occurred at nine middens and in two isolated locations (Table 11). Three were found at CA-TEH-1254, two at CA-TEH-1249 and -1255, and one each at CA-TEH-1217, -1245, -1248, -1251, and -1257. The 1983 excavations at CA-TEH-387, -1196, -1211, and -1232 added over 27 projectile points and fragments to the project inventory (Judy D. Tordoff, Personal Communication 1984).

Virtually all of the specimens found on the survey can be related to point forms originating in the last 1500 years, with most considerably more recent. The majority

of the points fit into what Treganza (1958, 1959) defined as the Gunther-barbed type. The leafshaped, cornernotched and single widestemmed examples are representative of an older time period.

Flaked-stone artifacts, probably used as tools, were found at 12 sites. All of these artifacts were of chert. However, given proper analysis, it is likely that many of the specimens identified as flakes and cores would have been reclassified as scrapers and cutting tools. During the sorting and cataloguing of the artifactual material from the 1983 test excavations, a large number of probable scrapers and cutting tools were noted (John Dougherty, Personal Communication 1984).

Summary

The Tehama Lake area contains a large body of material data relevant to the prehistory of the Native American populations in north central California. The great number of sites, features, and artifacts suggests that the project area was occupied for at least the last 2500 years, and perhaps longer. During the past 300 to 500 years, however, the occupation here may not have been as intensive as it was in the Dutch Gulch project area to the north.

Historic Archeological Remains

Of the 42 sites in the Tehama project area with historic remains, 41 can be related to homesteading, ranching, or farming (Table 4). Among these sites are the Farquhar School (CA-TEH-841H), the Rosewood town site (CA-TEH-839H); and a variety of combinations of foundations, wells, single graves or cemeteries, privies, dumps and artifact scatters. The remains of these historic occupation sites date from the 1870s through modern times, though most date from the twentieth century. The sites range in complexity from a single feature, such as a well or dump, to fairly large groupings of foundations or pier alignments with associated wells, dumps, and other features (CA-TEH-1223/H; CA-TEH-1236/H). Most of the sites are located along Dry Creek or the South Fork of Cottonwood Creek. In addition, three sites each are on Salt Creek, Long Gulch, and unnamed Dry Creek tributary drainages; one site is along Spring Gulch. A single site (CA-TEH-1202/H) appears to be the remains of a small mining camp on Dry Creek. Its identification as a mining camp rests on the presence of several small piles of tailings nearby.

Historic Occupation Sites

The town of Rosewood dates to the 1880s, and settlement in the area dates back as far as the 1860s. The only remains of the town are the water tower, a disconnected rock alignment that was probably part of a foundation, the well, and a small artifact scatter. Twentieth century reorganization of the current Rosewood Ranch has destroyed other remains. It is reported that the small house immediately west of the Baker Fire Control Station is a Rosewood schoolhouse, previously located on the west bank of Salt Creek, next to the old Highway 36 road alignment (J. and H. Hencratt, Personal Communication 1984).

The Farquhar School (CA-TEH-841H) dates to the 1870s and survived until modern times. While the site has not undergone the extensive modification that ravaged Rosewood, its remains now consist only of a number of building piers and lumber, a privy and well, and a scatter of artifacts.

The 39 other historic occupation sites represent a variety of ranching and farming undertakings in the project area. Twenty-seven of these sites are homesteads or later ranches/farms with more than two associated features. Of the remaining site locations, two are artifact scatters only, one is a hearth pad, one is the locale of two dumps, five are isolated wells, and three are isolated graves. The remaining two graves/cemeteries are associated with recorded homestead complexes.

Features

Standing structural remains were found at only four of the historic occupation sites (Rosewood, CA-TEH-839H; Durrer Ranch, CA-TEH-385H; CA-TEH-1236/H; CA-TEH-1258/H [Plates 9 and 10]). Other structural remains consist of from one to three cobble alignments, sandstone pier footings and cement foundations, and occasional scattered lumber. This lack of structural integrity at most of the historic sites can be traced to two primary sources. Land modification in the past ten to 20 years has altered or destroyed many site locations. Not to be overlooked, also, are the effects of the extensive re-use of materials that likely occurred during the entire span of project area occupation. Homesteads were occupied for varying lengths of time; portions of the Diamond Ranch, for instance, were acquired from homesteaders who sold out for a good price after only a year. Others stayed longer, however, and buildings must have remained when they left. In the hard times associated with the development of the Tehama Lake area, it is likely that much of the usable construction material was salvaged by neighbors and used over and over again.

Twenty-eight wells were found at 25 historic occupation sites; these were all lined with either cement, cobbles, or cut blocks. Most had been filled or had collapsed. At least one of the isolated wells (CA-TEH-1281H) is the remains of one which supplied the Diamond Ranch stock with water. Ten dumps were found at 12 site locations, and four possible privies were recorded. Some of the enigmatic depressions recorded may represent other privies or filled trash pits.

Other features noted during the survey include five corrals (not necessarily contemporaneous with the sites where they are located), several orchards in association with homestead locations, and a possible dam in the creek beside one site. Also recorded were four rock-lined dugouts, probably used as root cellars, although one is reported to have been a wine cellar (CA-TEH-1295H).

Two of the historic occupation sites include grave or cemetery locations among their recorded features. A possible grave is present across from CA-TEH-1223/H in a side drainage of Dry Creek. This feature , marked with unincised sandstone slabs, has not yet been confirmed as a burial. The cemetery at CA-TEH-1250/H consists of two marked graves and up to six unmarked graves. Subsequent to recordation, the project boundaries were revised to excise this cemetery. Three additional grave locations were recorded (CA-TEH-840H, CA-TEH-1303H, CA-TEH-1357H). Another cemetery

is reported to have been located along Dry Creek (J. Hencratt, Personal Communication 1984) but it has not been confirmed that this cemetery is within the project area boundaries.

Site Dates

Archival sources indicate that the earliest sites located during the survey date from the 1870s (Farquhar School and Rosewood). However, the earliest artifactual evidence places only one site (CA-TEH-1262/H) in the 1880s. The vast majority of sites, according to artifactual evidence, date from the twentieth century, many of these from no earlier than the second or third decade. Some of these sites are on land parcels that were owned in the 1870s or, more often, in the 1880s. It is not known whether the sites were first occupied at that time, or if they were occupied for the first time in this century. In any event, the remaining evidence of historic occupation within the project area appears to be from more recent times.

Artifacts

Artifacts recorded during the survey reflect the uses of Tehama lands. Glass, ceramics and metal artifacts were all recorded in varying numbers. Very little animal bone and shell were observed, as were items of rubber, leather and other more perishable substances. Many recorded artifacts represent activities associated with farming and ranching: plowshares, wagons, harness parts, and tools. Others represent domestic life: personal items such as clothing and toys, furniture, dishes and glassware, and objects of food preparation and storage.

An overview of the kinds of artifacts observed at the Tehama sites is presented in Table 15. The table shows the presence or absence of various classes of artifacts, arranged in functional categories. The divisions are very broad; each could be broken down into more finely defined categories. However, at the current level of analysis, this manner of presentation is intended only to provide a general idea of the kinds of activities indicated at the sites. Examples of the artifacts recorded in the field that are included within the functional categories are given below:

Personal

Clothing: buttons, buckles, shoes, hooks and eyes, jewelry, watches, garters and suspenders (metal parts), zippers

Health and Personal Appearance: glass medicine containers, razors, glasses, mirrors, cream and ointment containers

Recreation: musical instruments, toys, smoking paraphernalia, games, ice cream freezer

Household

Food Preparation and Consumption: ceramics, pots and pans, silverware, enamelware/graniteware, glass tableware, cooking utensils

Food Storage: tin cans, canning jars, other food containers

Furnishings: beds and other furniture, furniture hinges, clock parts

Household Maintenance: cleaning equipment and fluid containers, washtubs, pails/buckets/basins, copper boilers, irons

Heating: cast iron stove parts

Lighting: oil or kerosene lamp and lantern parts

Activities

Farming/Ranching: plow parts, barb wire, hoes, haybaler parts, planter parts, hay/grass cutter parts, harrows

Animals: horse/mule/ox shoes, harness parts, sheep shears, cow bells

Non-automotive Transportation: buggy and wagon parts, bicycle parts

Automotive: car parts, license plates

Hunting/Fishing: guns and ammunition, traps

Other: blacksmith tools, other tools (axes, saws, wedges, chisel, shovels, pitchforks), barrel hoops

Structural

Components: roofing materials, concrete, brick, window glass, wood, flashing

Hardware: nails, door knobs, locks, door hinges, window hardware, electrical sockets

Mining

Only one site (CA-TEH-1202/H) may be the location of a small mining camp. This site consists of the remains of a cabin on Dry Creek near a small area of tailings piles. No mining equipment was found at the site, which appears to have been occupied for only a short time. At some point it (or its remains) burned. During the test excavations at CA-TEH-1196, Locus B, several shallow pits and possible tailings piles were noted along the southern limits of the site. No other historic features were noted. This may represent a second mining site in the project area.

C-074727

LIST OF PLATES

PLATE 4

C-074729

PLATE 5

PLATE 6

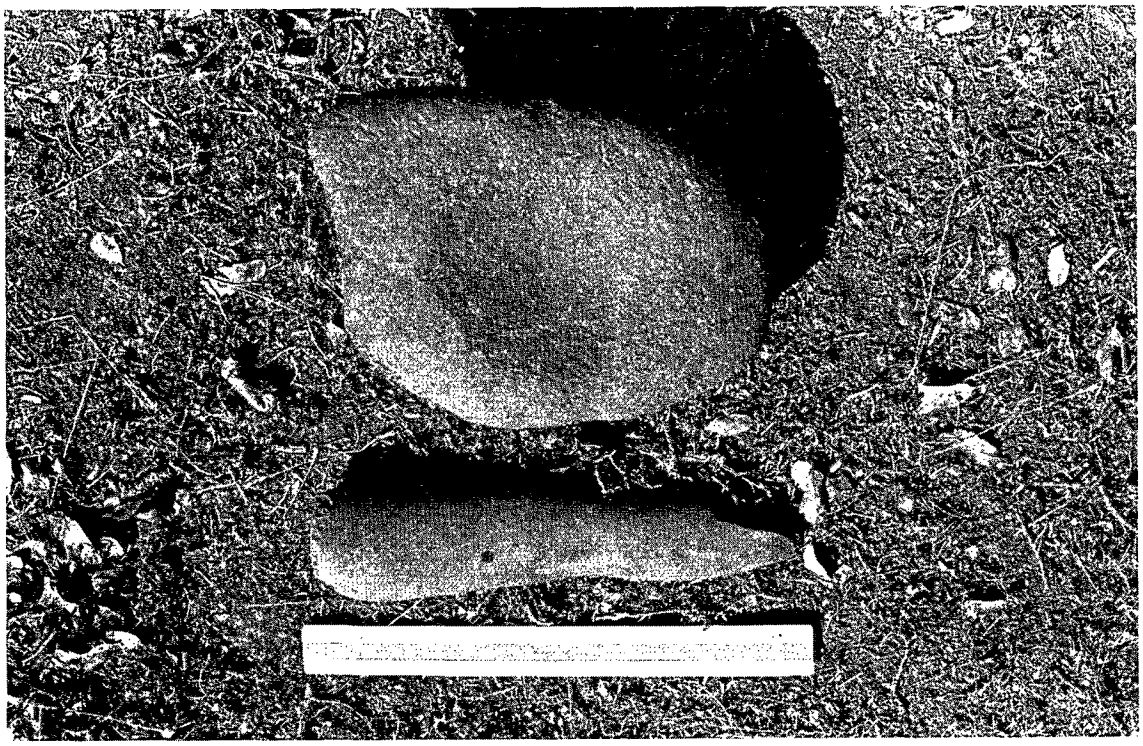
C-074731

PLATE 7

C-074732

PLATE 8

C-074733



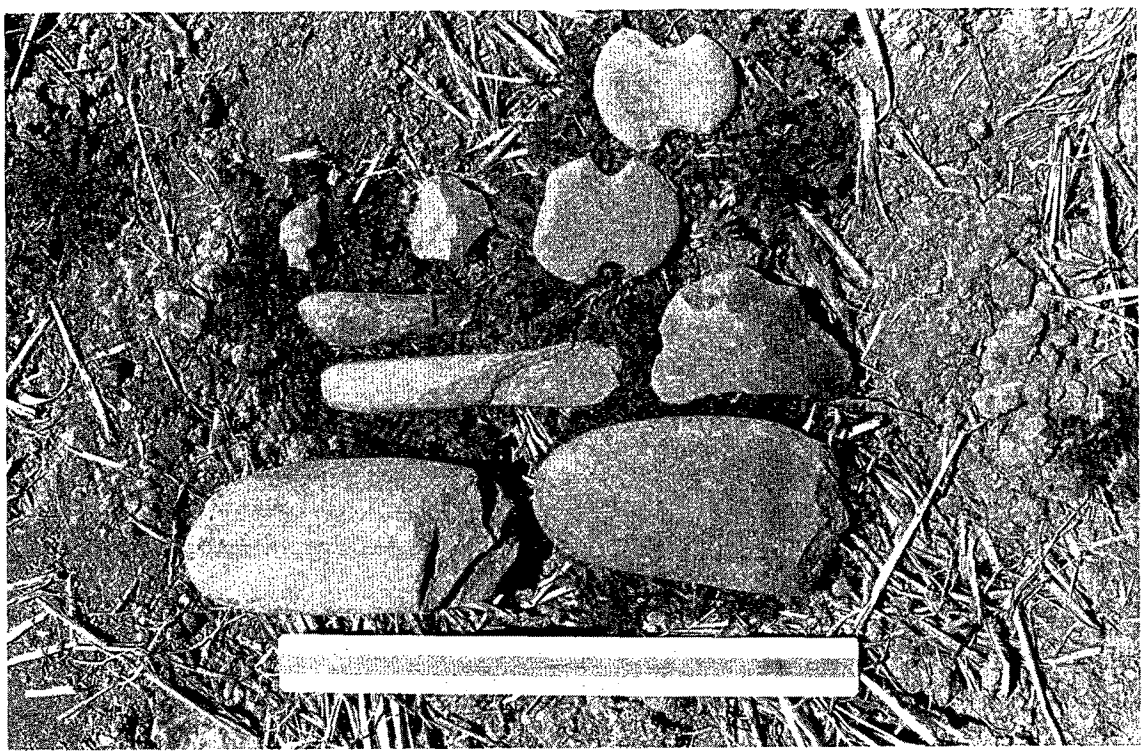


PLATE 9

PLATE 10

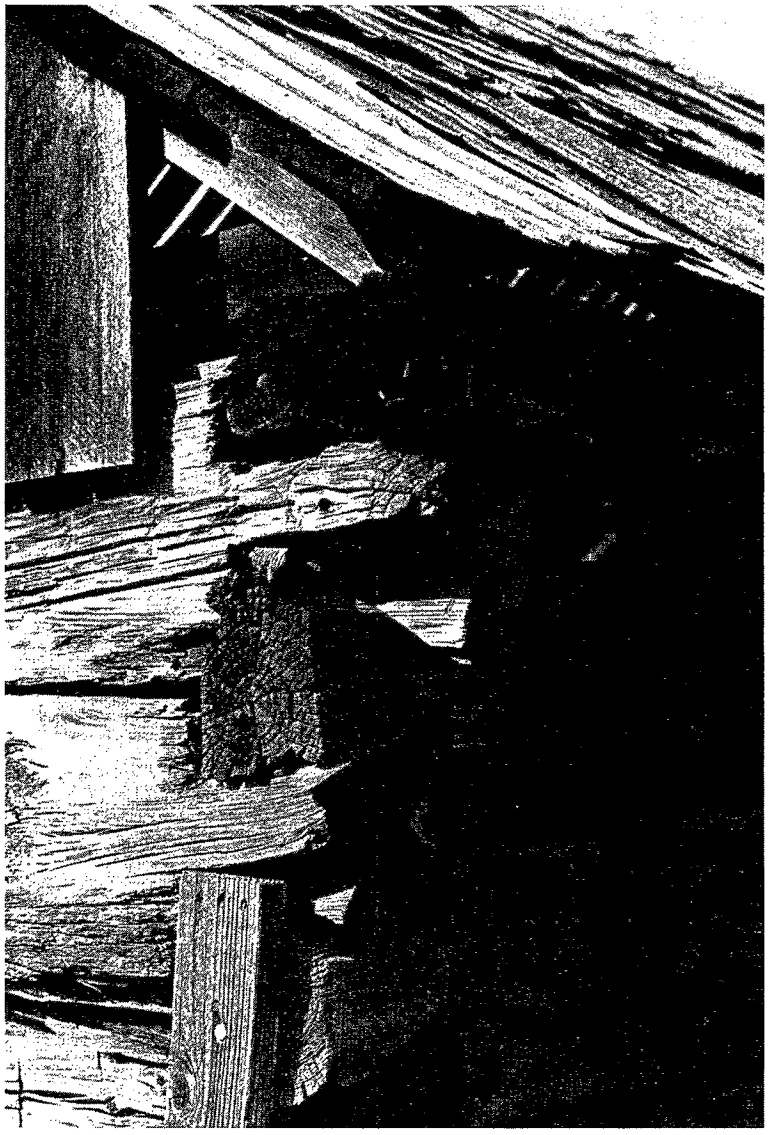
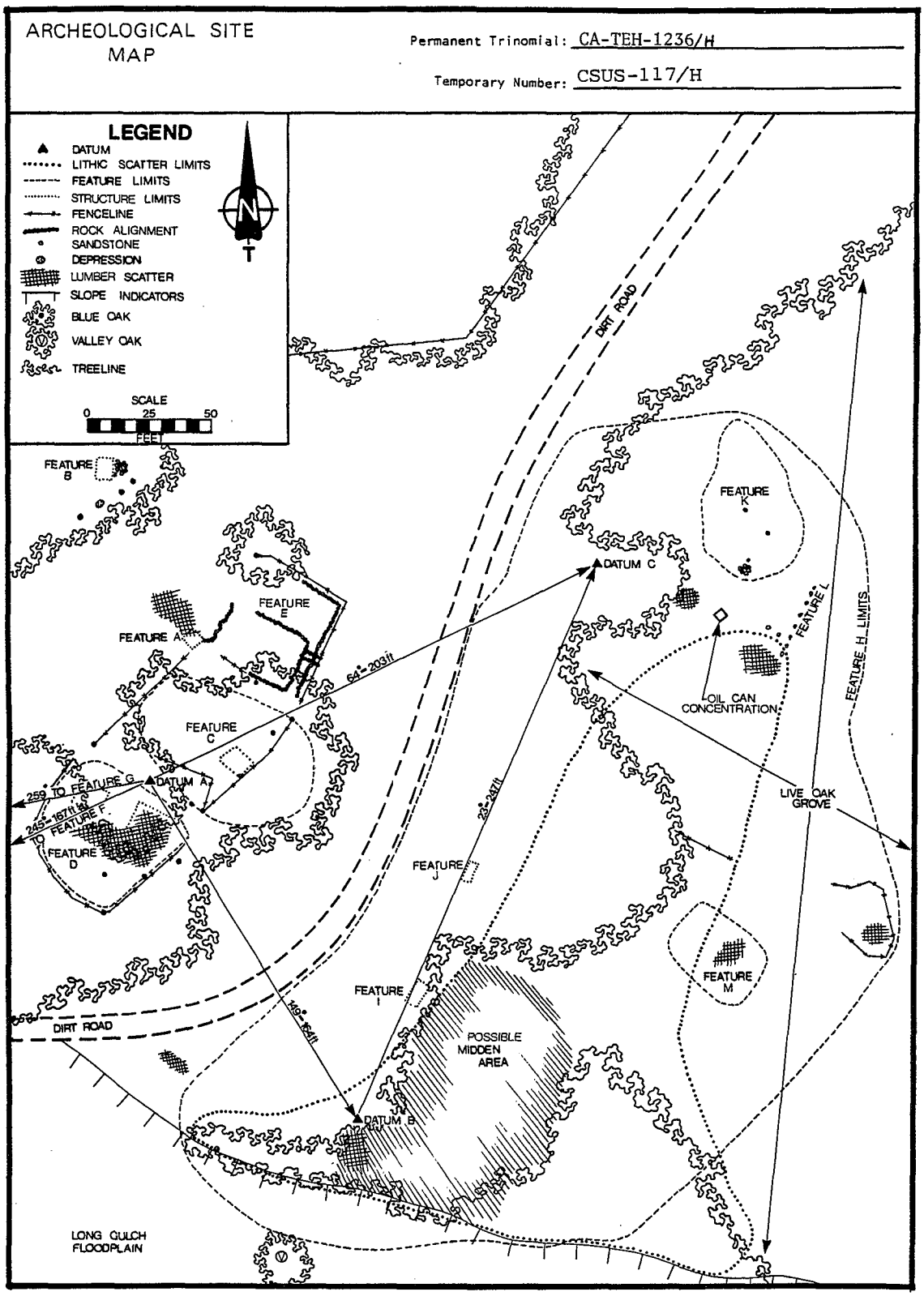
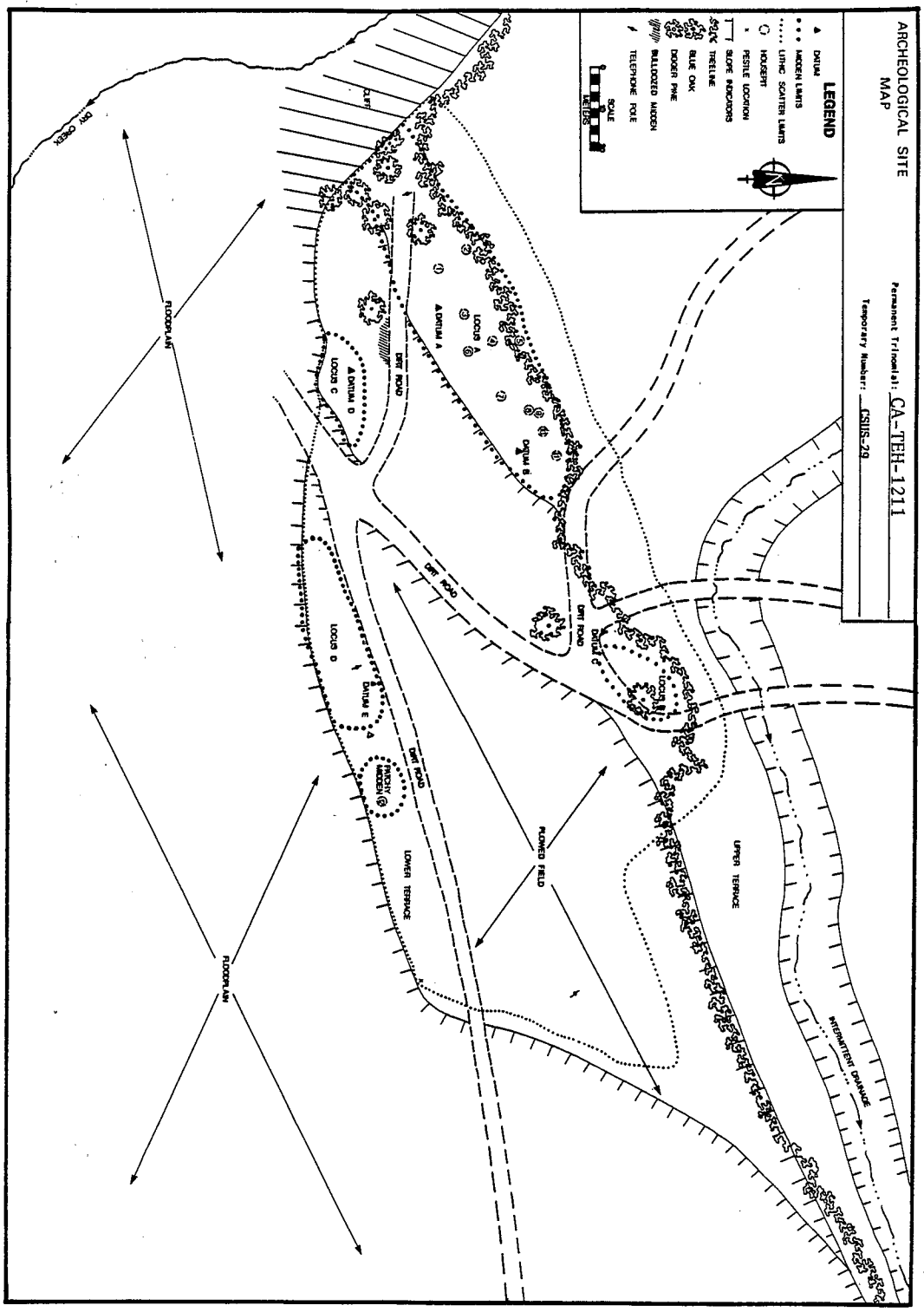


PLATE 11

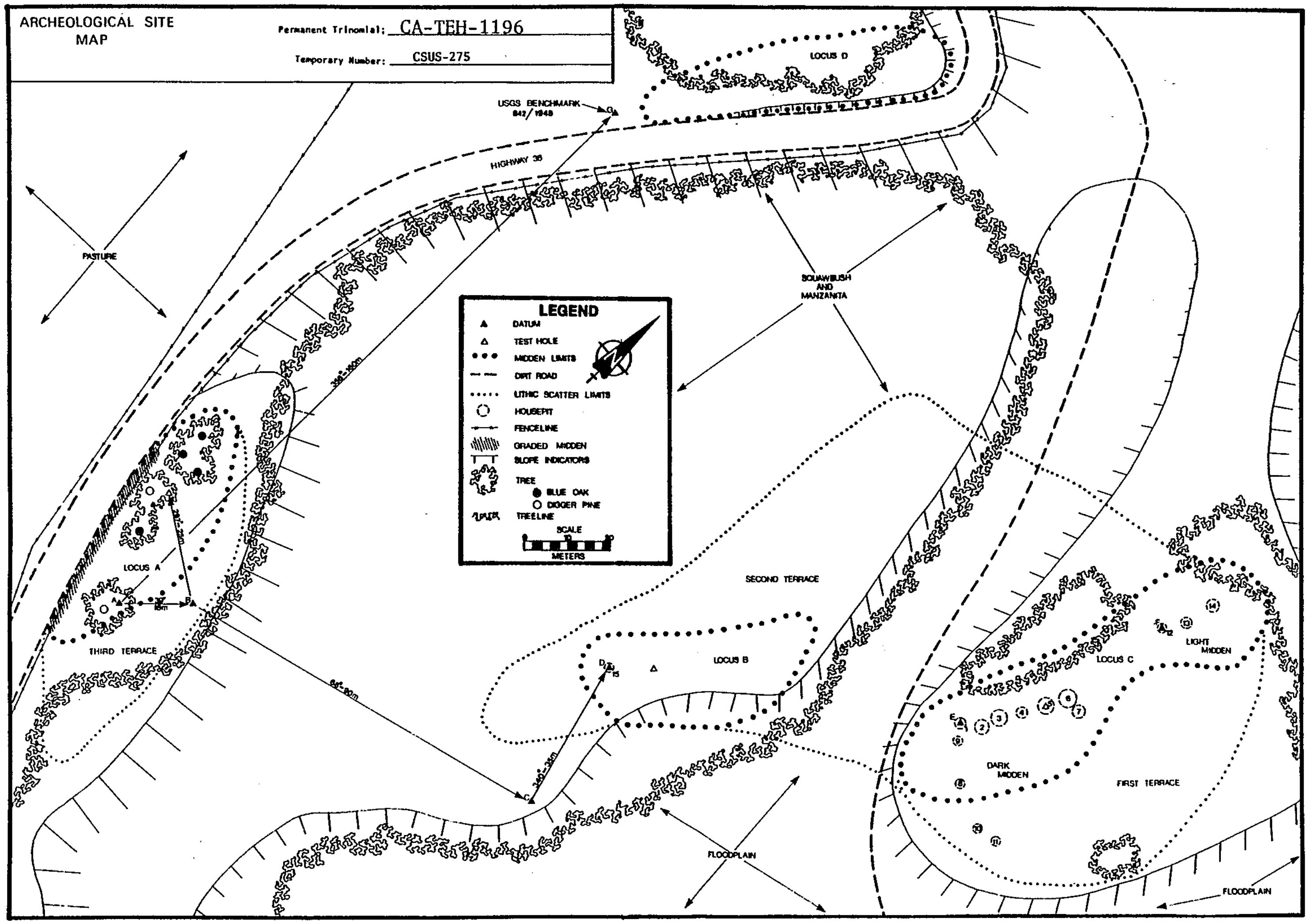
MAP 2





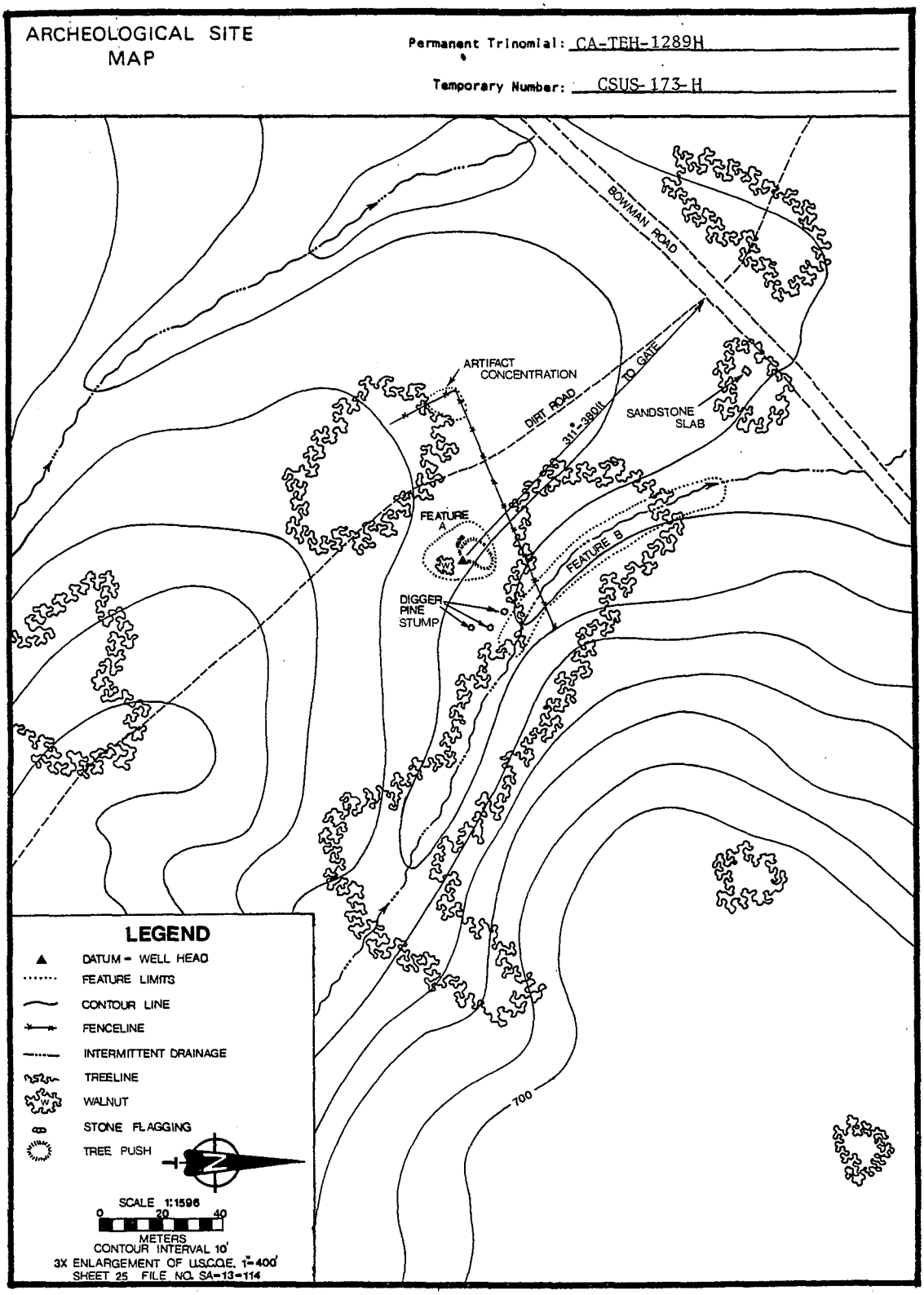
MAP 3

C-074738

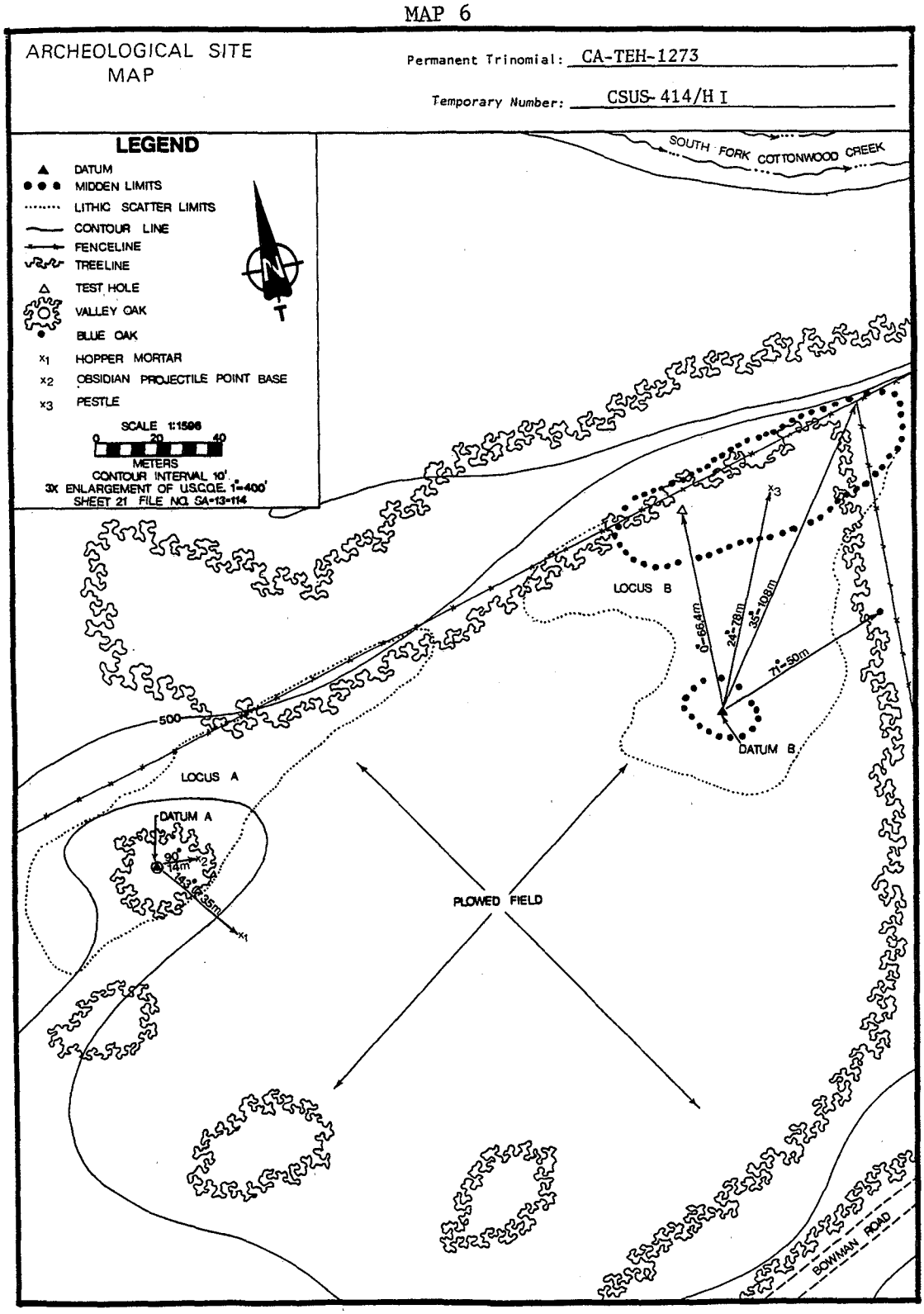

ARCHEOLOGICAL SITE MAP
Permanent Trinomial: CA-TEH-1196
Temporary Number: CSUS-275
USGS BENCHMARK 842/1948
HIGHWAY 36
PASTURE
LOCUS A
THIRD TERRACE
LOCUS B
SECOND TERRACE
LOCUS C
LIGHT MIDDEN
DARK MIDDEN
FIRST TERRACE
LOCUS D
SQUAWBUSH AND MANZANITA
FLOODPLAIN
FLOODPLAIN
LEGEND
DATUM
TEST HOLE
MIDDEN LIMITS
DIRT ROAD
LITHIC SCATTER LIMITS
HOUSEPIT
FENCELINE
GRADED MIDDEN
SLOPE INDICATORS
TREE
BLUE OAK
DIGGER PINE
TREELINE
SCALE
METERS

MAP 4

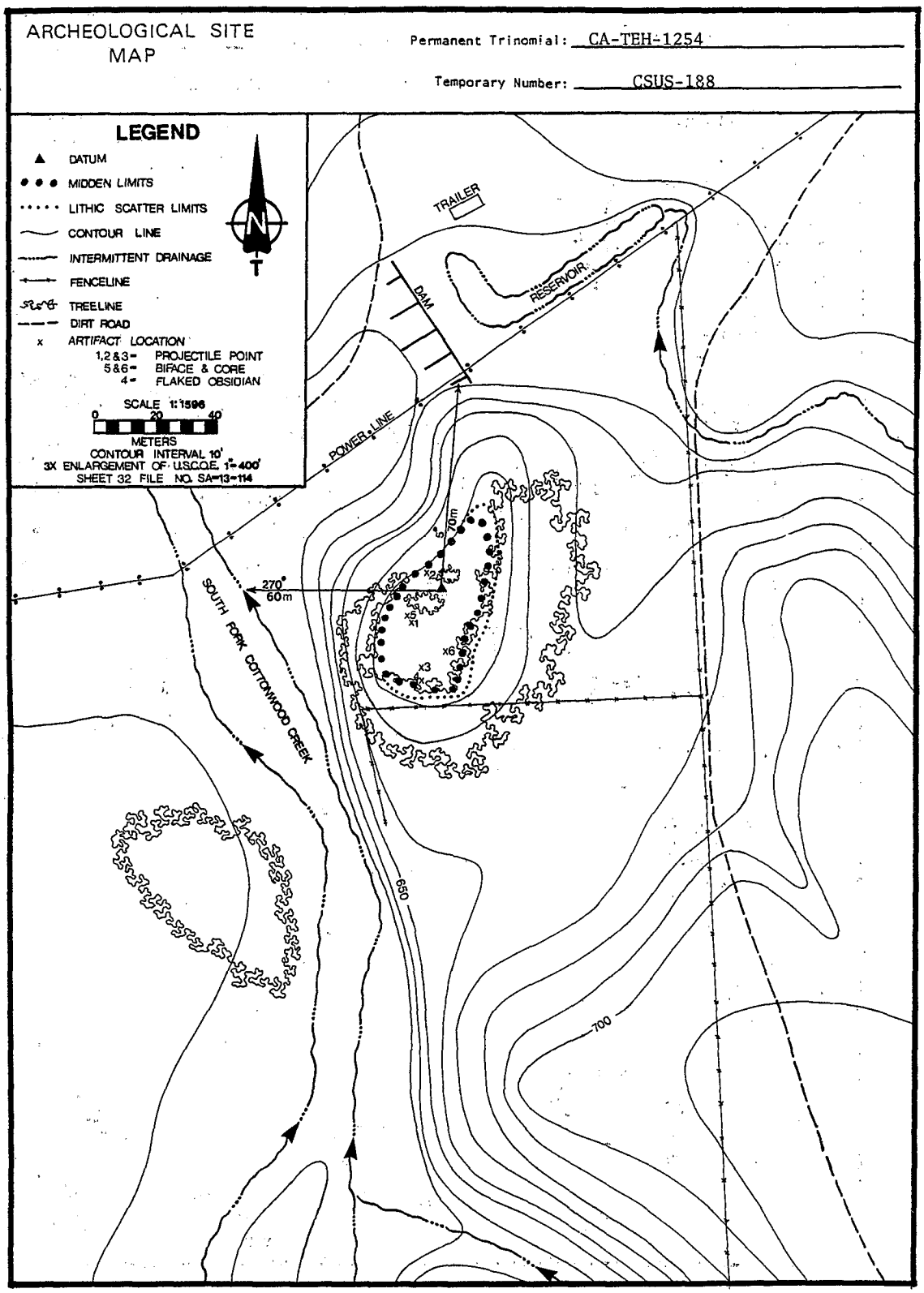
MAP 5



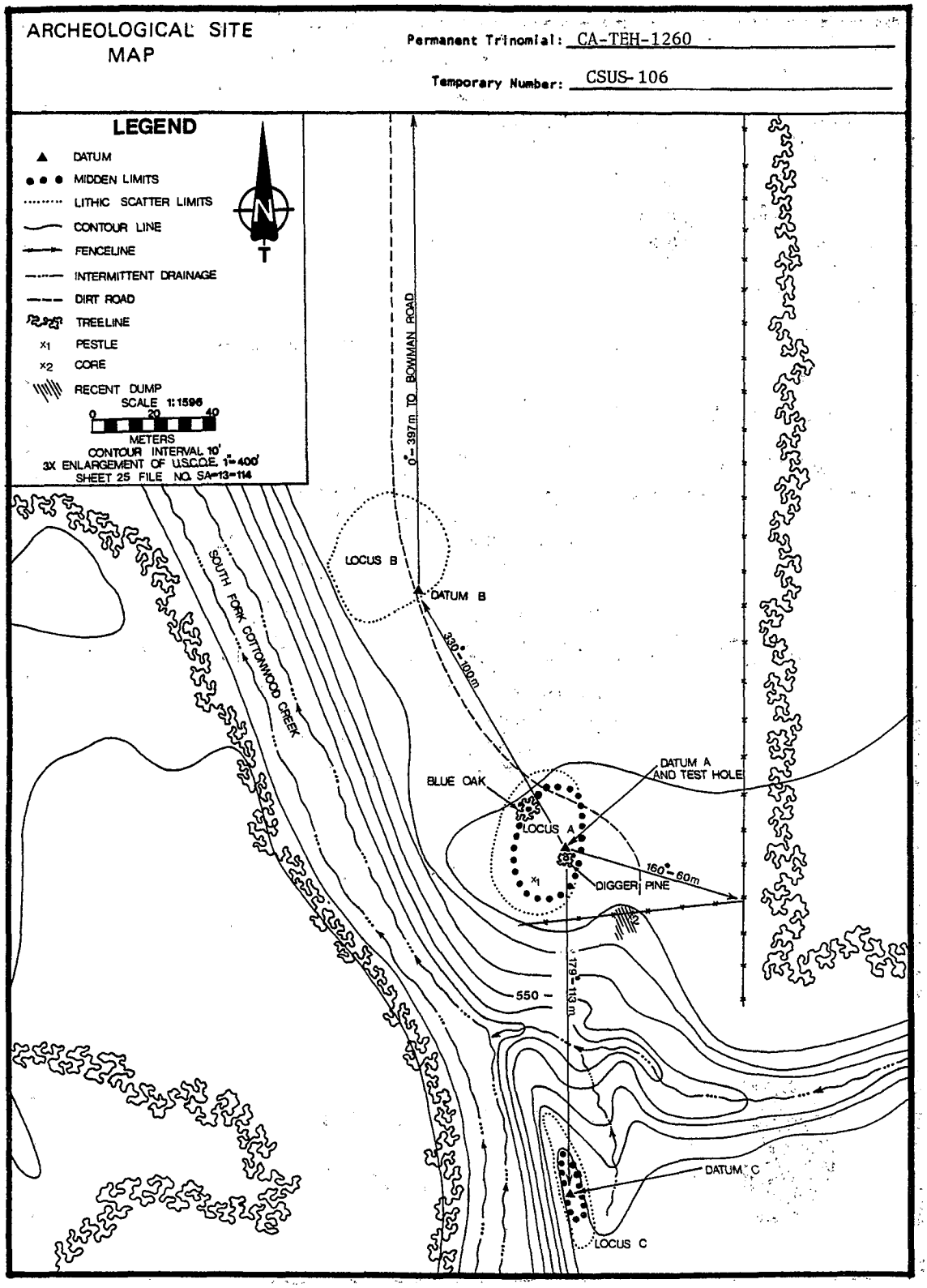
MAP 6



MAP 7



MAP 8



C-074743

MAP 9

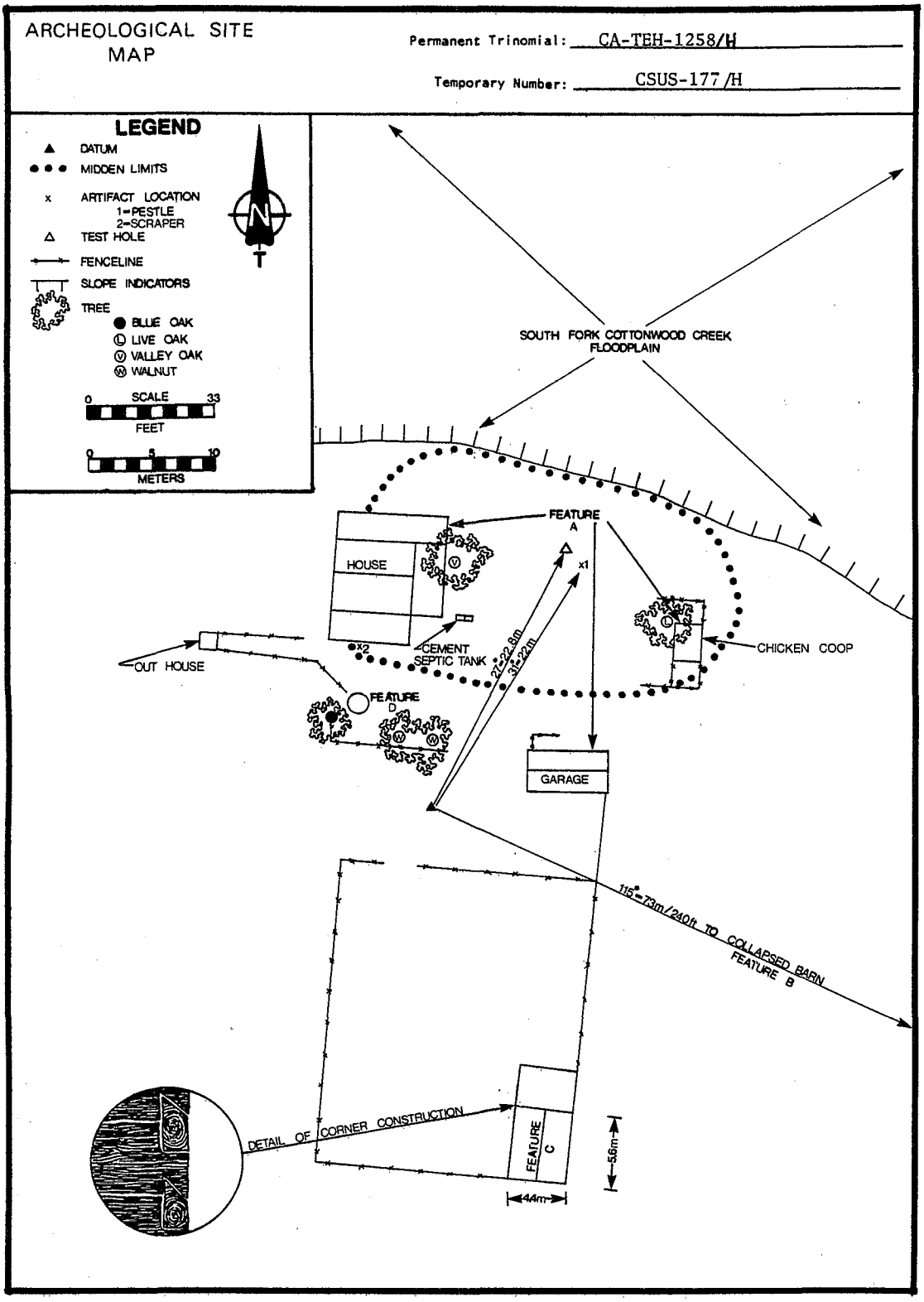


TABLE 3

PREHISTORIC SITE CHARACTERISTICS

SITE NUMBER		SITE TYPE	LOCATION	ELEVATION (feet)	SIZE (Meters) LENGTH (meters)	WIDTH (meters)	DEPTH (centimeters)	AREA	HOUSE PITS	ARTIFACTS PESTLES	HOPPER MORTARS	MANOS	METATES	PROJECTILE POINTS	FLAKES	CORES	UNIFACE CORES	MISCELLANEOUS	CARBONATES	INTEGRITY	REMARKS
CA-TEH																					
-384		LS	SC,DC	648-663	425	50	-*	21,250	0						N	N			NT	2	2 pestles reported by Jensen (1978)
-386		M	SC	670	100	25	.70	2500	0						N	N			-	3	
-387	A	M	SC	730	33	20	.50	660	8?										-	2	Housepits may be stump holes
	B	M		700-705	250	40	.80	10,000		1		1		1GB	N	N		Stone bead,	+	0	Dozed; thin scatter of 1880s glass and cast iron; clam shell and native tobacco noted.
-388		M	SC	700	25	20	.60	500	0						N	N			-	1	
-837/H	A	M	SFCC	650	115	45	.27	5,175	0						N	N			-	3	
		LS**			135	70	-	9,450	0						N	N			NT		
	B	M		665	60	30	.30	1,800	2		1				N	N		4 flake tools	-	3	
		LS			135	50	-	6,750							N	N			NT		
-838	A	M	SFCC	550-555	100	50	.80	5,000	0						N	N	S	Unusual ground and flattened cobbles	NT	3	
		LS			490	50	-	24,000	0						N	N			NT		
	B	LS			70	35	-	2,450	0						N	N	S		NT	3	
-1196	A	M	DC	760	65	22	.40	1,430	0	1					N	N			-	4	
	B	M		710	58	22	.50	1,276	1						N	N			-	5	
	C	M		700	90	30	.70	2,700	14						N	N			-	5	
	D	M		740	116	90	1.0	10,440	0						N	N			+	3	
-1197		M	DC	710	25	23	.80	575	1	2					N	N			+	5	
		LS			30	30	-	900							N	N			NT		
-1198		M	DC	725	18	12	.40	216	0						S	S		HM/Mt?	-	5	
-1199	A	M	DC	680-695	33	20	.30	660	1	1					N	N			-	1	
	B	M,LS	DC		55	25	.25	1,375	0	2					N	N	1		-	4	
	Overall				220	90		19,800													
-1200		M	DC	725	38	25	.50	950	2						N	N			-	2	
		LS			72	40	-	2,880	0						N	N			NT		
-1201	A	M	DC	656-689	44	20	1.2	880	11						N	N			-	2	
	B	M		656-689	18	18	.50	324	3						N	N			-	3	
	Overall				200	100		20,000													
-1202/H		M	DC	655	24	10	.05	240	6	1					N	N			+	4	Housepits in lithic scatter
		LS		640-705	200	200		40,000													
-1203	A	M	DC	655-660	36	28	.90	1,088	0	1					S	S			-	2	
	B	M,LS		665	12	12	.70	144	0						S	S			-	1	
	C	M,LS		653	38	9	.40	342	0						S	S			-	4	
-1204		M	DC	685	24	22	.46	528	1	1					N	N		Flake tool	-	2	
		LS			50	45	-	2,250													
-1205	A	M	DC	645-655	60	25	.36	1,500	3						N	N			-	2	
	B	LS		693	25	18	-	450	0						N	N			-	2	
	C	M		682	100	30	.46	3,000	0						N	N			-	2	
	D	M		650-670	10	10	.10	100	0						N	N			-	2	
	Overall				440	50		22,000													
-1206		LS	DC	630-640	100	100	-	10,000	0						N	S			NT	1	
-1207		M	DC	620-630	64	20	.50	1,280	1						N	N		Biface	-	1	
		LS			100	44	-	4,400	0						N	N			NT		
-1208		M	DC	673	24	22	.35	528	0	1					N	N			-	4	
		LS			48	44	-	2,112	0						N	N			NT		
-1209	A	M,LS	DC	665	56	18	.30	1,008	4		1				N	N		PSP	-	4	
	B	M,LS			35	24	.36	840	7						N	N			-	5	
	Overall				138	40		5,520													
-1210	A	M,LS	DC	602-610	41	23	.30	943	3?						N	S			-	2	
	B	M,LS			12	10	.30	120							N	S			-	3	
	Overall				320	100		32,000	5												Housepits between loci
-1211	A	M,LS	DC	600-630	90	22	1.0	1,980	11	1			1		N	N		PSP	-	3	
	B	M,LS			18	14	.30	252	0						N	N			-	2	
	C	M,LS			26	12	.30	312	0						N	N			-	3	
	D	M,LS			48	12	.30	576	1	1	1				N	N			-	3	
	Overall				225	90		20,250													

Table 3, Prehistoric Site Characteristics (continued)

SITE NUMBER		SITE TYPE	LOCATION	ELEVATION (feet)	LENGTH (meters)	WIDTH (meters)	DEPTH (centimeters)	AREA	HOUSE PITS	PESTLES	HOPPER MORTARS	MANOS	METATES	PROJECTILE POINTS	FLAKES	CORES	UNIFACE CORES	MISCELLANEOUS	CARBONATES	INTEGRITY	REMARKS
-1212		M	CC	658	28	28	.35	784	0	1					N	1			-	2	
		LS			47	38	-	1,786	0						N				NT		
-1213		M	CC	544	15	14	.35	210	0						N	N			-	2	
		LS			140	120	-	16,800	0		1				N				NT		
-1214		LS	UD	670	20	12	-	240	0						S	S			NT	2	Chert assay core site
-1215		LS	DC	662	84	25	-	2,100	0						N	1			NT	2	
-1216		LS	DC,LG	580-645	765	50	-	38,250	0						N	N			NT	2	
-1217		M	DC	580	65	30	.50	1,950	0					1	N	S			-	3	Chert stemmed point
		LS			427	137	-	58,499													
-1218		M	DC	590	50	20	***	1,000	0						N	N		Core tool	-	1	
		LS			230	70	-	16,100													
-1219		CS	SFCC	650-785	1450	450	-	652,000	0							S	N		NT	3	
-1220		M	DC	580-595	60	50	.50	3,000	0					1	N	S		Flake tool	-	1	
		LS			400	80		32,000	0						N				NT		
-1221		M	DC	590	75	40	***	3,000	0	1					N				-	1	
-1222		M	DC	575	25	13	.35	325	0						N	N			-	2	
		LS			52	16		832	0						S				NT		
-1223/H		M	DC	550-610	110	60	.28	6,600	0	1					N	N			-	3	
		LS			550	275		151,250	0	2	1	1			N	N			NT		
-1224		M	DC	590	18	17	.20	306	0	1					N	N			-	4	
		LS			40	35		1,400	0						S				NT		
-1225		LS	DC	570	75	70	-	5,250	0						N	N			-	1	Possible slight midden
-1226		LS	DC	570	66	30	-	1,980	1?						N	N	1		-	3	
-1227/H	A	M	DC	555	47	25	.75	1,175	2	1	1	1			S				-	3	
		LS			60	30	-	1,800	0										NT		
	B	LS			40	10	-	400	0						N	1			NT	3	
	Overall				160	70		11,200													
-1228		HP	DC	540	15	10	-	150	2									"Gamblers Special"	NT	4	
		LS			365	1	-	365	0						N	S		pistol in housepit	NT	1	
	Overall				365	15		5,475													
-1229	A	M,LS	DC	563	16	16	.20	256	0						S	S			NT	2	
	B	LS			39	30	-	1,170	0						N				NT	2	
-1230		M	DC	560	80	60	.30	4,800	0	1					N	N		Biface	-	0	
-1231		M	DC	555	43	18	.40	774	0						S	1			NT	3	
-1232		M	SC	720	60	40	1.5	2,400	0		1				N	N		Hammerstone	-	1	
-1233		M	SC	690-710	40	38	.65	1,520	0						N	N			+	1	Midden smeared by dozer
	Overall				110	55		6,050													
-1234		M	SC	710	30	30	.30	900	0	1					N	N			-	1	Midden smeared by dozer
	Overall				50	50		2,500													
-1235		LS	SC	712	29	20	.10	580	0						S	1			-	2	
-1236/H		M	LG	680-700	23	17	.10	391	0						S	S	1		-	1	Midden may be oak duff
		LS			76	69		5,168	0						S	S			NT		
-1237		CS	LG	670-740	800	650	-	520,000	0		1				1		N		NT	3	
-1238	A	LS	LG	650-655	122	100	-	12,200	0	1	1				S	S	1		-	3	
	B	LS			20	10	-	200	0							S			-	3	
-1239		CS	LG	645-732	1220	200	-	244,000	0							N	N		NT	3	
-1240		CS	LG	710-815	350	300	-	105,000	0						3	N	N		NT	3	
-1241		LS	LG	645	98	23	-	2,254	0						3	N	1		-	3	
-1242		CS	LG	600-811	580	400	-	232,000	0						5	N	N		NT	3	
-1243		CS	UD	640-790	1100	600	-	660,000	0							N	N		NT	3	
-1244	A	M	LG	603	60	20	.15	1,200	0						N				-	2	
	B	M		603	5	5	.15	25	0										-	1	

Table 3, Prehistoric Site Characteristics (continued)

SITE NUMBER		SITE TYPE	LOCATION	ELEVATION (feet)	LENGTH (meters)	WIDTH (meters)	DEPTH (centimeters)	AREA	HOUSE PITS	PESTLES	HOPPER MORTARS	MANOS	METATES	PROJECTILE POINTS	FLAKES	CORES	UNIFACE CORES	MISCELLANEOUS	CARBONATES	INTEGRITY	REMARKS
-1245	A	M	SFCC	752-760	77	36	.24	2,772	0					1	N					- 4	
	B	M	SFCC		25	20	.16	500	0	1	1				N					- 3	
	Overall				102	56		3,272													
-1246/H	A	M	SFCC	680-720	30	25	.25	750	3						N	N				- 4	
	B	M			27	22	-	594	3						1					- 4	
	C	M			30	28	.35	840	0		1				N	S				- 3	
-1247	A	M	SFCC	750-755	56	40	.53	2,240	0		1				N	N				+ 1	
		LS			88	60	-	5,280	0						S					NT	
	B	LS			20	10	-	200	0						N					NT 1	
-1248	A	M	SFCC	680-740	55	20	***	1,100	0	1	1	1	1	1	N	S				- 1	
	B	M			25	20	***	500	0						3					- 1	
	C	LS			65	17	***	1,105	0	1					N	N	1			NT 1	
-1249		M	SFCC	755	36	36	***	1,296	0					2	N	2	1			NT 1	
-1250/H	A	M	SFCC	680-735	40	30	.30	1,200	0						N	N				- 4	
	B	M,LS			70	20	***	1,400	0		1				N	N				- 1	
	A&B Overall				160	50		8,000													
	D	M			21	17	***	357	0						S	1				- 1	
-1251	A	M	UD	740	30	30	***	900	0					1	N	S		Flake tool		- 1	
	B	M,LS		740	40	30	***	1200	0	2					N	S				- 1	
	Overall				110	30		3,300													
-1252	A	M	SFCC	675-680	55	55	.10	3,025	0		2	2			N	N	1			- 2	
	B	LS			20	17	.10	340	0			2	1		2					- 2	
-1253	A	M	SFCC	705	30	15	.70	450	1	1					N	N		Flake tool		- 2	
		LS			70	30	-	2,100	0						S					NT	
	B	M,LS		705	35	20	.60	700	0	1					N	N		3 graywacke flakes		- 2	
-1254		M	SFCC	680-688	44	23	.45	1,012	0					3	N	S		Biface; obsidian		- 2	
		LS			51	30		1,530	0						S			flake tool		NT	
-1255		M	SFCC	675	80	40	***	3,200	0	2				2	N	N	4	Biface fragment		- 2	
		LS			140	60		8,400	0						S					NT	
-1256		LS	SFCC	625	36	22	-	792	0						N		S			NT 3	
-1257	A	M	SFCC	654	50	25	.30	1,250	0					1	N	N				- 3	
	B	M		654	25	20	.30	400	0											- 3	
-1258/H		M	SFCC	574	30	18	.32	540	0	1					N	N		3 Flake tools		NT 1	
-1259	A	M	SFCC	554-604	60	28	.30	1,680	0	2					N	S				NT 3	
		LS			60	40	-	2,400	0						S					NT	
	B	M			55	23	.20	1,265	0						S	S	S			NT 3	
	C	LS			40	20	-	800	0							2				NT 3	
-1260	A	M	SFCC	580	39	21	.72	819	0	1					N	S	1			- 2	
		LS			50	30	-	1,500	0						S					NT	
	B	LS		580	49	31	-	1,519	0						N		1			NT 2	
	C	M		580	25	10	.30	250	0						N	1				NT 3	
		LS			53	10		530	0						S					NT	
-1261	A	M	SFCC	570	36	25	.30	900	0						N	S				NT 1	
	B	M			18	14	.30	252	0						S	1				NT 1	
-1262/H		M	SFCC	555-560	60	20	1.0	1,200	0	1					N	S				+ 2	
		LS			140	40	-	5,600		0					N					NT	
-1263		M	SFCC	553	25	22	.40	550	1						S	1				- 4	
		LS			78	36		2,808	0						N					NT	
-1264		M	SFCC	543	40	22	.50	880	0						S	1				- 3	
-1265		LS	SFCC	515	60	20	-	1,200	0		1				S	S				NT 1	
-1266	A	M	UD	520-560	120	60	.82	7,200	0						N	N		Flake tool		NT 2	
	B	LS			60	40	-	2,400	0						S	S		3 flake tools; 2 pos-		NT 2	
	C	LS			30	20	-	600	0						N	S		sible net weights		NT 2	
-1267		M	SFCC	680	20	16	.1	320	3						N	S	1			- 4	
-1268		M	SFCC	537	80	54	.21	4,320	0						N	S				NT 1	
		LS			84	54		4,536	0						N					NT	
-1269		LS	SFCC	531	41	36	-	1,476	0	1					N	1				- 2	
-1270		LS	SFCC	510-526	230	164	-	37,720	0						N	N	S	Biface; bowl-like concretion		NT 2	

Table 3, Prehistoric Site Characteristics (continued)

SITE NUMBER		SITE TYPE	LOCATION	ELEVATION (feet)	LENGTH (meters)	WIDTH (meters)	DEPTH (centimeters)	AREA	HOUSE PITS	PESTLES	HOPPER MORTARS	MANOS	METATES	PROJECTILE POINTS	FLAKES	CORES	UNIFACE CORES	MISCELLANEOUS	CARBONATES	INTEGRITY	REMARKS
-1271		LS	SFCC	510	335	30	-	10,050	0						N	N		Flake tool	NT	1	
-1272		LS	SFCC	506	77	36	-	2,772	0	1					N	S			NT	1	
-1273	A	LS	SFCC	506-511	160	40	-	6,400	0	1	1				N	S			-	2	
	B	M			24	20	.30	480	0						N	N		Flake tool	-	2	
	C	M			100	30	.30	3,000	0	3		1			N	N			-	2	
		LS			120	100	-	12,000	0						S				NT		
	Overall				150	120		18,000													
-1274		LS	PC	675	46	31	-	1,426	0						S	S		Biface; uniface	NT	4	
-1275	A	LS	PC	555	55	38	-	2,090	0	1					S	S			NT	3	
	B	LS		570	30	2	-	60	0						1		1		NT	3	
	C	LS		590	36	2	-	72	0						S	1	1		NT	3	
	D	LS		580	49	33	-	1,617	0						S	S		Flake tool	NT	3	
-1276		LS	PC	580	60	31	-	1,860	0						N	N		Graywacke flake	NT	3	
-1277		M	PC	571	24	5	.20	120	0						N	N		Blade	-	3	
		LS			184	47		8,648	0						S	S			NT		
-1278		M	PC	618	28	27	.25	756	0		1	1			S	S		Flake tool	-	2	
		LS			45	29	-	1,305	0						S	S			NT		

TOTAL: 89 sites (80 prehistoric, 9 prehistoric and historic)

* Depth assumed to be zero unless otherwise noted.
** Overall dimenions are represented by the lithic scatter for any given locus.
*** Depth undeterminable due to extreme disturbance.

KEY:

Site Type:

M = Midden
LS = Lithic Scatter
CS = (Unifacial) Core Scatter

Drainage:

SFCC = South Fork Cottonwood Creek
DC = Dry Creek
SC = Salt Creek
LG = Long Gulch
SG = Spring Gulch
UD = Unnamed Drainage
CC = (Big) Crane Creek
LCC = Little Crane Creek
PC = Pine Creek

Artifacts:

P = Pestle
HM = Hopper Mortar
M = Mano
Mt = Metate
Pt = Projectile Point
FL = Flake
CO = Core
UC = Unifacial Core
GB = Gunther Barbed
PSP = Polished Slate Pebble
N = Numerous (more than 10)
S = Sparse (2 to 10)

Carbonates

\+ = Positive
\- = Negative
NT = Not tested

Integrity:

5 = Excellent
4 = Very Good
3 = Good
2 = Fair
1 = Poor
0 = Destroyed

TABLE 4

HISTORIC SITE CHARACTERISTICS

	SITE TYPE	LOCATION	ELEVATION (feet)	LENGTH (feet)	WIDTH (feet)	AREA	NUMBER OF FEATURES	ROCK ALIGNMENTS	FOUNDATIONS	FOOTINGS	WELLS	PRIVIES	DUMPS	DEPRESSIONS	ARTIFACT SCATTERS	HEARTH/CHIMNEY	STRUCTURES	TRASH PITS	MISCELLANEOUS	INTEGRITY	ERA/REMARKS
CA-TEH																					
-385H	Ranch	DC	660	295	295	87,025	4								1		2S		Corral	1	1870s-1930s?, Durrer Ranch
-837/H	HOS	SFCC	655	10	10	100	1				1								Fruit trees	1	Unknown
-839H	Town	SC	675-710	492	394	193,848	5		2		1				1		1S			1	1880s, Rosewood
-840H	C	SC	715	24	14	336	1													4	1896?; Durrer Cemetery
-841H	S	DC	580	98	66	6468	3+			1		1+			1					1	1870s+, Farquhar School
-1202/H	MC?	DC	640	20	20	400	2	1							1				Mine tailings	1	1890-1920
-1223/H	HOS,C	DC	550-610	328	196	64,288	5	2	1		1		1						Possible grave Plowed terrace	2	1900-1920s
-1227/H	HOS	DC	550	318	138	43,884	3				1				1				Pad	1	c.1890-1920s?
-1236/H	HOS	LG	680-700	350	350	122,500	12	2	1		2	1	1				3C,1S	1	Dugout, Feeder	3	1920s-1940s
-1246/H	HOS	SFCC	680-720	60	13	780	2				1			1						1	20th century ?
-1250/H	HOS	SFCC	680-700	115	65	7,475	4					?		2		1H			Dugout	2	Unknown
	C		735	33	23	759	8												8 graves	4	Dated graves:1862, 1891
-1258/H	HOS	SFCC	574	290	180	52,200	6				1						1C,3S	1		1	1900-1980s; Hand-hewn structure present
-1262/H	HOS	SFCC	555-560	210	200	42,000	2				1								Orchard	1	1880s-1890s
-1279H	HOS	DC	700-710	800	400	320,000	7		2		2							2	Corral	1	1920s-1930s
-1280H	W,AS	DC	690-700	100	70	7,000	2				1				1					1	1890s-1930s
-1281H	W	DC	635	55	24	1,320	3			1	1								Ditch	1	1930s Diamond Ranch well
-1282H	HOS	SG	700	50	30	1,500	4	1			2			1						2	1930s?
-1283H	HOS?	UD	695-710	100	80	8,000	1								1					0	1930s
-1284H	HOS	DC	605-615	240	200	48,000	4	3			1									1	1920s-1930s
-1285H	HOS	DC	640-683	240	120	28,800	5	2			1		1		1					1	1910-1930s
-1286H	HOS	DC	575-585	100	60	6,000	3	1					1	1						1	1900-1930s
-1287H	AS	UD	604	80	40	3,200	2								1				Dam in creek	1	1930s
-1288H	D	DC	635-660	414	180	74,520	2						2							1	1930s-1950s
-1289H	HOS	UD	650-720	400	300	120,000	3		1		1		1							1	1930s
-1290H	HOS	DC	575-610	400	250	100,000	5			2	1		1						Feeder	1	1920s-1940s+
-1291H	AS	DC	575	70	60	4,200	1								1					1	20th century?
-1292H	HOS	DC	590	220	100	22,000	5	1	1		1								2 corrals	1	early 20th century
-1293H	HOS	DC	582	295	142	41,890	9		1		1		1	6						1	1920s-1940s
-1294H	HOS	DC	580	100	75	7,500	2		1		1									0	20th century
-1295H	HOS	SC	715	800	400	320,000	4		1	2									Dugout	2	20th century; additional foundation and two wells off project to south
-1296H	HOS	LG	688	195	146	28,470	4				1			1		1HorC			1	2	1900-1920s
-1297H	HOS	LG	715	900	600	540,000	3		1	1								1		0	20th century?
-1298H	HOS	SFCC	685	197	130	25,610	2				1			1						0	20th century
-1299H	W	SFCC	675-680	250	13	3,250	2				1								50+ bricks	1	Unknown
-1300H	HOS	SFCC	670-680	121	91	11,011	4	1				1?	2							1	1930s+
-1301H	HOS	SFCC	559	120	120	14,400	4	1	1		1		1							1	1890s-1920s?
-1302H	HOS	SFCC	580-595	160	120	19,200	4								1		1C		Corral, Dugout	1	20th century
-1303H	C	SFCC	592	9	4	36	1												Grave	5	No Date; Gransbury grave

Table 4.1 Prehistoric Site Characteristics (continued)

SITE NUMBER		SITE TYPE	LOCATION	ELEVATION (feet)	LENGTH (meters)	WIDTH (meters)	DEPTH (centimeters)	AREA	HOUSE PITS	PESTLES	HOPPER MORTARS	MANOS	METATES	PROJECTILE POINTS	FLAKES	CORES	UNIFACE CORES	MISCELLANEOUS	CARBONATES	INTEGRITY	REMARKS
-1271		LS	SFCC	510	335	30	-	10,050	0						N	N		Flake tool	NT	1	
-1272		LS	SFCC	506	77	36	-	2,772	0	1					N	S			NT	1	
-1273	A	LS	SFCC	506-511	160	40	-	6,400	0	1	1				N	S			-	2	
	B	M			24	20	.30	480	0						N	N		Flake tool	-	2	
	C	M			100	30	.30	3,000	0	3		1			N	N			-	2	
		LS			120	100	-	12,000	0						S				NT		
	Overall				150	120		18,000													
-1274		LS	PC	675	46	31	-	1,426	0						S	S		Biface; uniface	NT	4	
-1275	A	LS	PC	555	55	38	-	2,090	0	1					S	S			NT	3	
	B	LS		570	30	2	-	60	0						1		1		NT	3	
	C	LS		590	36	2	-	72	0						S	1	1		NT	3	
	D	LS		580	49	33	-	1,617	0						S	S		Flake tool	NT	3	
-1276		LS	PC	580	60	31	-	1,860	0						N	N		Graywacke flake	NT	3	
-1277		M	PC	571	24	5	.20	120	0						N	N		Blade	-	3	
		LS			184	47		8,648	0						S	S			NT		
-1278		M	PC	618	28	27	.25	756	0		1	1			S	S		Flake tool	-	2	
		LS			45	29	-	1,305	0						S	S			NT		

TOTAL: 89 sites (80 prehistoric, 9 prehistoric and historic)

* Depth assumed to be zero unless otherwise noted.
** Overall dimenions are represented by the lithic scatter for any given locus.
*** Depth undeterminable due to extreme disturbance.

KEY:

Site Type:
- M = Midden
- LS = Lithic Scatter
- CS = (Unifacial) Core Scatter

Drainage:
- SFCC = South Fork Cottonwood Creek
- DC = Dry Creek
- SC = Salt Creek
- LG = Long Gulch
- SG = Spring Gulch
- UD = Unnamed Drainage
- CC = (Big) Crane Creek
- LCC = Little Crane Creek
- PC = Pine Creek

Artifacts:
- P = Pestle
- HM = Hopper Mortar
- M = Mano
- Mt = Metate
- Pt = Projectile Point
- FL = Flake
- CO = Core
- UC = Unifacial Core
- GB = Gunther Barbed
- PSP = Polished Slate Pebble
- N = Numerous (more than 10)
- S = Sparse (2 to 10)

Carbonates
- + = Positive
- - = Negative
- NT = Not tested

Integrity:
- 5 = Excellent
- 4 = Very Good
- 3 = Good
- 2 = Fair
- 1 = Poor
- 0 = Destroyed

TABLE 5

ISOLATED PREHISTORIC ARTIFACT GROUPINGS

ARTIFACT GROUPING NUMBER	DRAINAGE	FLAKE	CORE	UNIFACIAL CORE TOOL	PESTLE	HOPPER MORTAR	MISC.	TOTAL ARTIFACTS
CSUS- 7	UD	2						2
- 13	DC	2	2		1			5
- 14	DC	3						3
- 16	DC					1		1
- 17	PG		1					1
-.19	UD		1					1
- 20	DC		1					1
- 22	DC		1					1
- 25	UD		1					1
- 26	DC						1 Mt/HM	1
- 31	UD	8					2FT	10
- 42	SG						1CT	1
- 43	UD						1CT	1
- 49	DC		1					1
- 53	DC	2						2
- 54	DC	4	1					5
- 55	DC		1	1				2
- 56	DC	1	1	1				3
- 59	DC		1					1
- 62	UD	3						3
- 63	UD	2	1					3
- 66	UD	5	1					6
- 67	DC	2	1					3
- 69	UD	1						1
- 71	DC	3	2		1			6
- 72	UD	1						1
- 73	UD	2	1				1CT	4
- 76	UD	1	1					2
- 81	DC	1						1
- 82	DC	3	1					4
- 84	DC						1FT	1
- 86	SG	1						1
- 87	SG		1					1
- 90	UD	1	1					2
- 94	SC	2						2
- 95	SC						1FT	1
- 97	SC						1FT	1
- 99	UD	2	1					3
-100	SC	1					1Pt	2
-101	MG						1CT	1
-103	UD					1		1
-105	UD		2					2
-110	UD		1					1
-111	LCC	2						2

Table 5, Isolated Prehistoric Artifact Groupings (continued)

ARTIFACT GROUPING NUMBER	DRAINAGE	FLAKE	CORE	UNIFACIAL CORE TOOL	PESTLE	HOPPER MORTAR	MISC.	TOTAL ARTIFACTS
-113	DC	1						1
-114	DC	1						1
-115	CC		1					1
-116	LG		1	1				2
-119	LG	2						2
-120	LG		3					3
-121	UD			1				1
-126	LG			4				4
-127	UD	2		1				3
-128	CC	1		1				2
-129	UD	1		3				4
-131	LG		2					2
-134	UD			3				3
-136	LG	1	2	1				4
-139	UD			3				3
-141	UD			1				1
-142	LG			3				3
-153	UD			7				7
-154	UD/LG			1				1
-156	UD			1				1
-161	UD			1				1
-168	UD			3			1CT	4
-169	UD/LG	1	1	3				5
-170	LG			1				1
-175	UD		1	7				8
-178	SFCC			1				1
-182	UD/SFCC	1	2	18				21
-184	UD/SFCC			2				2
-185	UD			7			1FT	8
-187	SFCC			2				2
-190	SFCC	2						2
-191	UD/SFCC		1					1
-192	UD			5				5
-193	UD			14				14
-199	SFCC	1					1PSB	2
-200	SC						1GB	1
-201	SC	6	2					8
-204	SC			1				1
-205	UD		1					1
-206	SC	1						1
-208	SC	1	1					2
-209	SC	1						1
-212	DC			1				1
-215	DC	2						2
-217	SFCC			2				2
-218	DC	1	2	1				4

Table 5, Isolated Prehistoric Artifact Groupings (continued)

ARTIFACT GROUPING NUMBER	DRAINAGE	FLAKE	CORE	UNIFACIAL CORE TOOL	PESTLE	HOPPER MORTAR	MISC.	TOTAL ARTIFACTS
-221	DC	2	2	4				8
-225	DC		1					1
-226	UD	1						1
-227	DC	2	3					5
-228	DC		1					1
-229	DC	1	1					2
-231	UD	1						1
-232	UD	1						1
-233	UD	1	1					2
-234	UD		1					1
-235	UD		1					1
-236	UD		1	2				3
-237	UD	10				1		11
-238	UD		1					1
-239	UD	1	1	3				5
-248	UD		6					6
-254	UD			1				1
-255	UD						1FT	1
-256	UD		7	2				9
-257	UD		3	1				4
-258	UD		3	1				4
-263	DC	1	2					3
-266	DC	5						5
-267	UD		2	1				3
-270	UD			1				1
-272	UD			1				1
-274	UD			1				1
-277	DC	5	3					8
-280	DC		1					1
-282	DC	1	2					3
-283	DC	2						2
-285	DC	2	7					9
-286	DC	1	5					6
-287	UD	1	2					3
-294	UD	3	1					4
-295	UD	1		2			1FT	4
-298	UD/SFCC			1			1FT	2
-301	SFCC	2				1		3
-304	SFCC	2		9				11
-309	UD			1				1
-310	SFCC	5	2					7
-311	UD					1		1
-312	UD/SFCC			2				2
-315	UD	3	1	1				5
-316	UD			4				4
-317	UD			4				4

Table 5, Isolated Prehistoric Artifact Groupings (continued)

ARTIFACT GROUPING NUMBER	DRAINAGE	FLAKE	CORE	UNIFACIAL CORE TOOL	PESTLE	HOPPER MORTAR	MISC.	TOTAL ARTIFACTS
-321	UD			1				1
-324	UD			1				1
-407	SFCC			2				2
-420	UD/SFCC			1				1
BRR-1-1	UD			1				1
BRR-1-2	PC	1						1
BRR-1-3	UD			1				1
BRR-1,4-5	PC	1						1
BRR-2-6	PC			1				1
BRR-2-7	UD			1				1
BRR-2-8	UD/PC		1					1
BRR-2-9	PC			1				1
BRR-2-10	PC	2						2
BRR-2-11	PC	1	2					3
BRR-2-12	PC			1				1
BRR-2-13	PC	1						1
BRR-2-14	PC			1				1
BRR-2-17	PC	1						1
BRR-2-18	PC	2	1					3
BRR-5-19	PC		1					1
BRR-3,4,5-20	UD					1		1
BRR-4,5-21	UD			1				1
BRR-3,4,5-22	UD	1						1
BRR-3,4,5-23	PC		1					1
BRR-3,4,5-27	UD		2	1				3
BRR-3,4,5-29	UD	1						1
BRR-3,4,5-30							1Mt	1
BRR-5-32	UD	1	1					2
TOTALS: 166	Isolated	147	114	160	2	6	19	448

KEY:

DRAINAGES:

SFCC = South Fork Cottonwood Creek
DC = Dry Creek
PC = Pine Creek
UD = Unnamed Drainage
PG = Packer Gulch
LG = Long Gulch
SG = Spring Gulch
CC = Crane Creek
LCC = Little Crane Creek

ARTIFACTS:

Mt/HM = Metate/ Hopper Mortar
FT = Flake Tool
CT = Core Tool
Pt = Projectile Point
PSP = Polished Slate Pebble
GB = Gunther Barbed
Mt = Metate

TABLE 6
ISOLATED HISTORIC ARTIFACT GROUPINGS

ARTIFACT NUMBER	DRAINAGE	TYPE OF ARTIFACTS
CSUS- 18*	PG	Wagon parts, depression
- 21	UD	Wagon parts
- 35	UD	Dump (1920s-1960s)
-104	UD	Artifact scatter of car parts and agricultural equipment
-107	CC	Artifact scatter of cans, BBQ grill
-108	CC	Artifact scatter of glass, sheep shears
-109	LCC	Dump (1930s-1950s)
-135	LG	Can fragments, stove door
-164	UD	Cauldron fragment
-176	SFCC	1940s dump
-189	UD	1930s dump
-214	UD/DC	Glass and can scatter
-230	UD	"Watkins" bottle
-259	UD	Recent artifact scatter
-261	SFCC	Recent artfiact scatter
-314	UD	Recent dump
-414	SFCC	Glass and ceramics scatter
BRR-1-4**	UD	Collapsed structure of recent origin
2-16	PC	1900s-19? glass, ceramics, and metal scatter
5-31	UD	Dump (1950s-1960s)
3,4,5-25	PC	Wagon parts

TOTAL: 21 Isolated Locations

* General reservoir area.
** Bowman Road Realignment Survey.

DRAINAGES:

SFCC = South Fork Cottonwood Creek
DC = Dry Creek
UD = Unnamed Drainage
PC = Pine Creek
CC = Crane Creek
LCC = Little Crane Creek
LG = Long Gulch

TABLE 7
SITES WITH MULTIPLE MIDDENS

Site Number	Number of Middens	Historic Modification Responsible for Dividing Sites into Different Loci
CA-TEH- 837/H	2	
-1196*	4	
-1199	2	
-1201	2	
-1203	3	Loci A/B separated by old Highway 36 road bed.
-1205	3	
-1209	2	
-1210	2	
-1211**	4	
-1244	2	Loci A/B separated by current Highway 36 road bed
-1245	2	
-1246	3	
-1248	2	
-1250/H	4	
-1251	2	
-1253	2	
-1257	2	Loci A/B separated by current Highway 36 road bed.
-1259	2	
-1260	2	
-1261	2	
-1273	2	
TOTALS: 21	51	

* Loci B and C test excavated August through September 1983.
** Locus A test excavated August through October 1983.

TABLE 8

SUGGESTED CHRONOLOGICAL POSITION
AND OTHER CHARACTERISTICS OF THE MIDDENS

SITE NUMBER	LOCUS	SIZE IN CUBIC METERS	MIDDEN COLOR	CARBONATES	ARTIFACTS	HOUSE PITS	FIRE FRACTURED ROCK
CA-TEH- 386		1,167	LB	-	FL,CO	0	++
- 387	A	220	LB	-	FL,CO	8?	++
	B	5,333	DB	+	FL,CO,GB, Stone Bead	0	+++
- 388		200	DB	-	FL,CO	0	++
- 837/H	A	932	LB	-	FL,CO	0	++
	B	360	LB	-	FL,CO	2	++
- 838		2,667	DB	NT	FL,CO,	0	+++
-1196	A	381	LB	-	FL,CO,P	0	+
	B	425	LB	-	FL,CO	1?	++
	C	1,260	DB	-	FL,CO	14	+++
	D	6,960	LB	+	FL,CO	0	+
-1197		307	DB	+	FL,CO,P	1	++
-1198		58	MB	-	HM/Mt,FL,CO	0	+
-1199	A	132	LB	-	FL,CO,UC,3P	1?	+++
	B	229	DB	-	FL,CO	0	+++
-1200		317	DB	-	FL,CO	2	++
-1201	A	704	DB	-	FL,CO	11	+++
	B	108	MB	-	FL,CO	3	+++
-1202/H		8	MB	-	FL,CO	6	++
-1203	A	653	MB	-	FL,CO	0	++
	B	67	MB	-	FL,CO	0	++
	C	91	MB	-	FL,CO	0	++
-1204		162	LB	-	FL,CO,P	1?	+
-1205	A	360	MB	-	FL,CO	3	+
	C	920	MB	-	FL,CO	0	+
	D	7	DB	-	FL,CO	0	+
-1207		427	LB	-	FL,CO	1?	+
-1208		162	LB	-	FL,CO,P	0	++
-1209	A	202	DB	-	FL,CO,HM,PSP	4	++
	B	202	LB	-	FL,CO	7	++
-1210	A	189	MB	-	FL,CO	0	+
	B	24	MB	-	FL,CO	0	+
-1211	A	1,320	DB	-	FL,CO,MT,P PSP	11	+++
	B	50	DB	-	FL,CO	0	+++
	C	62	MB	-	FL,CO	0	+++
	D	115	MB	-	FL,CO,2P,HM	1	+++
-1212		183	MB	NT	FL,CO,P	0	+
-1213		49	MB	-	FL,CO,HM?	0	+
-1217		650	DB	-	FL,CO,Pt	0	+
-1218		33*	MB	-	FL,CO	0	+
-1220		1,000	MB	-	FL,CO,UC	0	+
-1221		100*	MB	-	FL,P?	0	+
-1222		76	LB	-	FL,CO	0	+
-1223/H	A	1,232	MB	-	FL,CO	0	+
-1224		41	MB	-	FL,CO,P?	0	+
-1227/H	A	588	MB	-	2HM,M,P,FL,CO	2	+
-1229	A	34	DB	NT	FL,CO	0	+
-1230		960	B	-	FL,CO,P	0	+++
-1231		206	LB	-	FL,CO	0	++
-1232		2,400	DB	-	FL,CO,HM	0	++
-1233		659	B	+**	FL,CO	0	+++
-1234		180	DB	-	FL,CO,P	0	+++
-1236/H	A	26	MB	-	FL,CO,UC	0	+
-1244	A	120	MB	-	FL	0	+
	B	3	MB	-	FL	0	+
-1245	A	442	MB	-	FL,Pt	0	++
	B	711	DB	-	FL,P,2HM	0	++
-1246	A	125	MB	-	FL,OC	3	+
	B	20	MB	-	FL	3	+
	C	196	MB	-	FL,CO	0	+
-1247	A	791	MB	+**	FL,CO	0	++
-1248	A	220*	MB	-	FL,CO,Pt,M, P,Mt,HM	0	+
	B	100*	MB	-	FL	0	+
-1249		259	MB	NT	2Pt,FL,CO	0	+
-1250/H	A	240	DB	-	FL,CO	1?	+
	B	280*	DB	-	FL,CO,HM	0	+
	D	71*	DB	-	FL,CO	0	+
-1251	A	180*	MB	-	Pt,FL,CO	0	++
	B	240*	MB	-	FL,CO,2P	0	++

TABLE 8 , Suggested Chronological . . . (continued)

SITE NUMBER	LOCUS	SIZE IN CUBIC METERS	MIDDEN COLOR	CARBONATES	ARTIFACTS	HOUSE PITS	FIRE FRACTURED ROCK
-1252	A	202	LB	-	2M,2HM,FL,CO UC	0	+
-1253	A	26	DB	-	FL,CO,2P	1	+
	B	280	DB	-	FL,CO	0	+
-1254		304	MB	-	FL,CO,3Pt,B	0	+
-1255		640*	DB	-	P,UC,CO,2Pt,B	0	+
-1257	A	250	MB	-	FL,CO,Pt	0	++
	B	80	MB	-	FL,CO	0	++
-1258/H		115	MB	NT	P,FL,CO,FT	0	+
-1259	A	336	MB	NT	2P,FL,CO	0	+
	B	169	MB	NT	FL,CO,UC	0	+
-1260	A	393	MB	-	UC,FL,CO,P	0	+
	C	50	MB	-	CO,FL	0	+
-1261	A	180	MB	NT	CO,FL	0	++
	B	50	MB	NT	CO,FL	0	++
1262/H		800	MB	-	CO,FL,P?	0	+++
-1263		147	LB	-	CO,FL,M	1	+++
-1264		293	B	-	CO,FL	0	++
-1266	A	3,936	MB	NT	CO,FL,FT	0	++
-1267		21	MB	-	CO,FL,UC	3	++
-1268		605	MB	NT	CO,FL	0	++
-1273	B	96	MB	-	CO,FL,FT	0	++
	C	600	MB	-	CO,FL,3P,M	0	++
-1277		16	LB	NT	CO,FL	0	+
-1278		176	LB	NT	CO,FL,HM,M	0	+

TOTALS: 63 Sites
93 Midden Loci

* Depth estimated at 30 centimeters; deposit grossly disturbed by bulldozers.
** Probably due to disturbance.

KEY:

COLOR:
LB = Light Brown
MB = Medium Brown
DB = Dark Brown
B = Black

CARBONATES:
+ = Positive
- = Negative
NT = Not Tested

ARTIFACTS:
FL = Flakes
CO = Cores
P = Pestle
HM = Hopper Mortar
Mt = Metate
Pt = Projectile Point
M = Mano
GB = Gunther Barbed
UC = Unifacial Core
PSP = Polished Slate Pebble
B = Biface
FT = Flake Tool

FIRE FRACTURED ROCK
+++ = Large Quantity
++ = Moderate Quantity
+ = Small Quantity

C-074758

TABLE 9
MIDDENS OF AN EPHEMERAL NATURE
(POSSIBLY OAK DUFF)

SITE NUMBER	LOCUS	AREA*	DRAINAGE	CARBONATES	ARTIFACTS	FIRE FRACTURED ROCKS
CA-TEH-1229	A	448	DC	NT	FL,CO	+
-1236/H	A	391	LG	-	CO,FL,UC	+
-1238	A	12,200	LG	NT	FL,CO,HM	NN
	B	200	LG	NT	CO	NN
-1252	A	3,025	SFCC	-	FL,CO,UC,2M 2HM	+

TOTAL: 4 Sites
5 Loci

* Cubic meters

KEY:

DRAINAGE:

SFCC = South Fork Cottonwood Creek
DC = Dry Creek
LG = Long Gulch

ARTIFACTS:

FL = Flakes
CO = Cores
UC = Unifacial Cores
HM = Hopper Mortar
M = Mano

CARBONATES:

- = Negative
NT= Not Tested

FIRE FRACTURED ROCKS:

+ = Small Quantity
NN = None Noted

C-074759

TABLE 10

TYPES AND FREQUENCY OF GROUND STONE ARTIFACTS

TYPE	NUMBER ON SITES	NUMBER OF SITES	ISOLATES	TOTAL NUMBER
Flat Ended Pestles	43	26	2	45
Hopper Mortars	19	16	6	25
Hopper Mortar/Metate Combination	0	0	1	1
Pestle/Mano Combination	1	1	0	1
Manos	11	7	0	11
Metates	3	3	1	4
Pecked Sandstone Slabs	0	0	1	1
Polished Slate Pebbles	2	2	0	2
TOTALS:	79	38*	11	90

.71 ground stone artifacts per site where such artifacts occur
* Some sites had more than one type of artifact.

TABLE 11

PROJECTILE POINT DATA SUMMARY

SITE NUMBER	DESCRIPTION
CA-TEH-1217	Weathered, waterworn, black-banded gray chert; toungue-shaped stem; slightly shouldered; 5.5 x 2.3 x .6 cm.
-1245	Black/ gray obsidian; slightly convex base; shoulders missing; 2.8 x 1.7 x .3 cm.
-1248	Translucent gray obsidian; stem and one barb missing; remaining barb suggestive of Gunther barbed type; 1.5 x 1.6 x .3 cm
-1249	Black obsidian; contracting stem; shoulders missing; suggestive of Gunther barbed type; 2.4 x 2 x .7 cm.
	Dark green chert; tip fragment; 2.2 x 2 x .7cm.
-1251	Orange/ black banded obsidian; contracting stem; slightly serrated blade; 2.3 x 1.7 x .3 cm.
-1254	Black obsidian; triangular blade; possible use as tool other than projectile point (scraping or cutting?); 2.3 x 2.2 x .3 cm.
	Gray Franciscan chert; convex base (or partial contracting stem); slight shouldering; 2.6 x 1.5 x .5 cm.
	Light gray/ green Franciscan chert; corner notched; expanding stem; slightly convex base; 3.9 x 2.1 x .6 cm.
-1255	Black translucent obsidian; tip fragment; 2.5 x 1.5 x .5 cm.
	Green chert with quartz vein inclusions; tip missing; side notched; straight base; expanding stem; 1.7 x 1.4 x .4 cm.
1257	Translucent black obsidian; tip fragment; midsection exhibits hingr fracture; 2.9 x 2.3 x.5cm.
Isolated Artifacts	
CSUS-100-PI	Gray chert; tangs, tip and portion of base absent; 3.3 x 2.3 x .5cm.
-200-PI	Gray obsidian; contracting stem; straight sides; slightly tanged; suggestive of Gunther barbed; 2.6 x 1.4 x .4 cm.

TABLE 12

LITHIC SCATTER CHARACTERISTICS

SITE NUMBER	LOCUS	SIZE IN SQUARE METERS	CARBONATES	ARTIFACTS	HOUSE PITS	DRAINAGE
CA-TEH- 384		21,250	NT	FL,CO	0	SC,DC
- 838	B	2,450*	NT	FL,CO	0	DC
-1205	B	450	-	FL,CO	0	DC
-1206		10,000	NT	FL,CO	0	DC
-1214		240	NT	FL,CO	0	UD
-1215		2,100	NT	FL,CO	0	DC
-1216		38,250	NT	FL,CO	0	DC,LG
-1219		652,500	NT	UC	0	SFCC
-1223	A-F,H,J	151,250	NT	FL,CO,6P,UC,2HM,M	0	DC
-1225		5,250	-	FL,CO	0	DC
-1226		1,980	-	FL,CO,UC	1?	DC
-1227/H	B	400	NT	FL,CO	0	DC,UD
-1228		5,475	NT	FL,CO	2	DC
-1229	B	1,170	NT	FL,CO	0	DC
-1235		580	-	FL,CO	0	SC
-1237		520,000	NT	UC,FL,HM	0	LG
-1238	A	12,200	NT	FL,CO,HM	0	LG
	B	200	NT	CO	0	LG
-1239		244,000	NT	UC,CO	0	UD
-1240		105,000	NT	UC,FL,CO	0	UD
-1241		2,254	-	UC,FL,CO	0	LG
-1242		232,000	NT	UC,FL,CO	0	UD
-1243		660,000	NT	UC,CO	0	UD
-1247	B	200	NT	FL,CO	0	SFCC,UD
-1248	C	1,105	NT	FL,CO,P	0	SFCC
-1252	B	340	-	FL,Mt,2M	0	SFCC
-1256		792	NT	CO,UC	0	SFCC
-1259	C	800	NT	CO	0	SFCC
-1260	B	1,516	NT	FL,UC	0	SFCC
-1265		1,200	NT	FL,CO,HM	0	SFCC
-1266	B	2,400	NT	FL,CO,FT	0	UD,SFCC
	C	600	NT	FL,CO	0	UD,SFCC
-1269		1,476	-	FL,CO,P	0	SFCC
-1270		37,720	NT	FL,CO	0	SFCC
-1271		10,050	NT	FL,CO	0	SFCC
-1272		2,772	NT	FL,CO,P	0	SFCC
-1273	A	6,400	-	FL,CO,HM,P	0	SFCC
-1274		1,426	NT	FL,CO	0	PC
-1275	A	2,090	NT	FL,CO	0	PC
	B	60	NT	FL,CO	0	PC
	C	1,617	NT	FL,CO	0	PC
	D	72	NT	FL,CO,UC	0	PC
-1276		1,860	NT	FL,CO	0	PC

TOTALS: 38 Sites
43 Loci

* According to CSU, Chico 1978 Site Record.

KEY:

CARBONATES:
+ = Positive
- = Negative
NT = Not Tested

ARTIFACTS:
FL = Flakes
CO = Cores
P = Pestle
HM = Hopper Mortar
Mt = Metate
Pt = Projectile Point
M = Mano
UC = Unifacial Core

FIRE FRACTURED ROCK
+++ = Large Quantity
++ = Moderate Quantity
+ = Small Quantity

DRAINAGES:
SFCC = South Fork Cottonwood Creek
DC = Dry Creek
SC = Salt Creek
PC = Pine Creek
LG = Long Gulch
UD = Unnamed Drainage

TABLE 13

HOUSE PIT DISTRIBUTION BY FREQUENCY

SITE NUMBER	LOCUS	DRAINAGE	NUMBER	SIZE RANGES (m) LARGEST DIAMETER	LARGEST DEPTH	SMALLEST DIAMETER	SMALLEST DEPTH	SITE TYPE
CA-TEH- 387		SC	8*					M
- 837/H	B	SFCC	2	4.2	.19	2.2	.15	M
-1196	B	DC	1	2.5	.15			M
	C		14	4.0	.35	2.4	.14	M
-1197		DC	1?	3.1	.15			M
-1199	A	DC	1?	2.5	.15			M
-1200		DC	2	2.7	.15	2.3	.16	M
-1201	A	DC	11	3.6	.22	2.7	.13	M
	B		3	3.0	.13	2.4	.16	M
-1202		DC	6	3.0	.23	2.5	.12	M
-1204		DC	1?	2.5	.18			M
-1205	A	DC	3	3.0	.16	2.6	.15	M
-1207		DC	1?	5.0	.20			M
-1209	A	DC	4	3.0	.19	2.5	.50	M
	B		7	3.5	.25	2.0	.10	M
-1210		DC	8	3.8	.14	2.5	.80	M
-1211	A	DC	11					
	D		1					
-1226		DC	1?	2.0	.14			LS
-1227/H	A	DC	2	4.0	.68	3.7	.80	M
-1228		DC	2	4.5x3.3	.5	4.0	.5	LS
-1246	A	SFCC	3	3.1	.17	2.6	.14	M
	B		3	3.2x2.8	.12	2.8x2.0	.10	M
-1250		SFCC	1?	3.5	.49			M
-1253	A	SFCC	1	4.0	.43			M
-1263		SFCC/DC	1	3.0	.15			M
-1267		SFCC	3	4.2x3.4	.18	3.0	.18	M

TOTALS: 22 Sites 102
27 Loci

* Probable stump holes based on 1983 CSU Sacramento test excavations.

KEY:

DRAINAGE:

SFCC = South Fork Cottonwood Creek
DC = Dry Creek
SC = Salt Creek

SITE TYPE:

M = Midden
LS = Lithic Scatter

TABLE 14

DISTRIBUTION OF GROUND STONE ARTIFACTS ON SITES

SITE NUMBER	DRAINAGE	PESTLE	HOPPER MORTAR	MANO	METATE	MISC.
CA-TEH- 387	SC	1				
-1196	DC	1				
-1197	DC	1				
-1199	DC	3				
-1204	DC	1				
-1208	DC	1				
-1209	DC		1			1*
-1211	DC	3	1		1	1*
-1212	CC	1				
-1213	CC		1			
-1221	DC	1				
-1223/H	DC	6	2	1		
-1227/H	DC	1	1	1		
-1230	DC	1				
-1234	SC	1				
-1237	LG		1			
-1238	LG		1			
-1245	SFCC	1	2			
-1246/H	SFCC		1			
-1247	SFCC		1			
-1248	SFCC	2	1	1	1	1 Pestle/Mano
-1250/H	SFCC		1			
-1251	UD	2				
-1252	SFCC		2	4	1	
-1253	SFCC	2				
-1255	SFCC	2				
-1258/H	SFCC	1				
-1259	SFCC	2				
-1260	SFCC	1				
-1262/H	SFCC	1				
-1263	SFCC/DC			1		
-1265	SFCC		1			
-1269	SFCC	1				
-1272	SFCC	1				
-1273	SFCC	4	1	1		
-1275	PC	1				
-1278	PC		1	1		
TOTALS: 37 Sites		43	19	11	3	3

* Polished Slate Pebble

KEY:

SFCC = South Fork Cottonwood Creek
CC = Crane Creek
LG = Long Gulch
DC = Dry Creek
UD = Unnamed Drainage
PC = Pine Creek
SC = Salt Creek

TABLE 15

FUNCTIONAL CLASSIFICATION OF HISTORIC ARTIFACTS

STATE TRINOMIAL	ARTIFACT YIELD	PERSONAL			HOUSEHOLD						ACTIVITIES						Other	STRUCTURAL	
		C	R	HPA	HM	FS	FPC	F	L	H	F/R	M	A	T	A	H/F		M	H
CA-TEH- 385H	ND	No data																	
- 837/H	L	No data																	
- 839H	L	No data																	
- 840H	-	No data															Cemetery		
- 841H	H	No data																	
-1202/H	L	X				X	X			X						X	X Mine tailings		X
-1223/H	H	X		X	X	X	X	X		X	X		X	X		X	X Well hand pump; dredge nozzle		X
-1227/H	M		X		X	X	X			X	X		X	X				X	X
-1236/H	H	X		X	X	X	X	X		X			X		X		X Grindstone fragments	X	X
-1246/H	L						X			X	X						X Wellhead pipe	X	
-1250/H	M		X		X		X						X				X		X
-1258/H	L				X	X	X			X	X		X	X	X	X	X Blow torch; water heater	X	X
-1262/H	L	X		X		X	X			X						X	X		X
-1279H	H	X	X		X	X	X		X				X		X	X	X Water trough part	X	X
-1280H	H	X			X	X	X		X	X			X	X			X Treadle sewing machine present	X	
-1281H	L																X	X	X
-1282H	L		X			X		X						X		X		X	
-1283H	H	X				X	X			X	X		X		X	X			X
-1284H	M	X			X	X	X	X										X	X
-1285H	H		X		X	X	X		X	X	X		X	X					X
-1286H	L		X		X	X	X			X	X		X	X				X	X
-1287H	L	X	X			X		X									X	X	
-1288H	H	X	X	X	X	X	X	X		X					X	X	X Phone battery	X	
-1289H	H		X	X		X	X	X		X			X		X		X Camp stove; wood burning H_2O heat.	X	X
-1290H	H	X	X		X	X	X			X	X		X	X	X		X Well pipe cleaner	X	X
-1291H	L						X			X			X				X	X	
-1292H	L			X		X					X							X	
-1293H	H	X	X	X	X	X	X		X	X	X			X	X	X	X	X	X
-1294H	L					X	X								X			X	X
-1295H	M			X		X	X			X	X		X			X	X Pipe coupling	X	X
-1296H	M	X				X	X						X	X		X		X	X
-1297H	M				X	X	X	X		X			X				X	X		
-1298H	H	X				X	X				X				X		X Kiln or heater	X	X
-1299H	-					X												X	
-1300H	L	X	X	X	X	X	X	X		X					X		Coleman hot plate	X	X
-1301H	M	X	X			X	X	X	X	X	X			X				X	
-1302H	H		X		X	X	X			X	X		X	X	X		X Blacksmith tongs; shingle splitter	X	X
-1303H	-																Grave		
-1304H	M	X		X	X	X	X		X	X	X			X	X		X	X	X
-1305H	L																Well		
-1306H	L						X				X						X		
-1357H	-																Grave		

TOTAL: 42 Sites

KEY:

PERSONAL:

C = Clothing
R = Recreation
HPA = Health/ Personal Appearance

ARTIFACT YIELD:

ND = No Data
L = Low
M = Medium
H = High

HOUSEHOLD:

HM = Household Maintenence
FS = Food Storage
FPC = Food Prep. and Consump.
F = Furnishings
L = Lighting
H = Heating

ACTIVITIES:

F/R = Farming/ Ranching
M = Mining
A = Animals
T = (Non-auto) Transportation
A = Automotive
H/F = Hunting/ Fishing

STRUCTURAL:

M = Materials
H = Hardware

CHAPTER 5

THE TEHAMA LAKE, COTTONWOOD CREEK PROJECT AND THE PREHISTORY OF NORTH CENTRAL CALIFORNIA

The prehistoric research concerns of the Tehama Lake portion of the Cottonwood Creek Project were viewed as a continuation of those established for Dutch Gulch Lake (Johnson and Theodoratus 1984a:187-219). Of major interest during the Dutch Gulch Lake research was the gathering and assimilation of as much of the previous archeological and ethnographic data on north central California as possible (Johnson and Theodoratus 1984a:Figures 28-37, Tables 1, 16-19). This information was combined with the data acquired during the 1981-82 survey and preliminary analysis of the collections from test excavated sites CA-SHA-290/H and CA-TEH-748, and used to evaluate Makoto Kowta's (Kowta 1975) research design concerning the prehistory of northeastern California. Kowta has continued to refine the ideas expressed in his research design and is currently completing a major evaluation of northern Maiduan prehistory (1978, 1984). Comparative archeological and ethnographic information from adjacent regions was also considered. This resulted in several lines of inquiry which centered around chronological relationships and generalized settlement patterns of the Wintu and Nomlaki (who spoke languages of the Penutian stock) and the Yana Indians (who spoke a language of the Hokan stock). The suggested displacement of the Yana from the upper Sacramento Valley after A.D. 300 to 500 by the Wintu and Nomlaki was given most attention. Of secondary interest was the relationship of the Bald Hills Wintu to the Hill Nomlaki, and the boundary which was thought to be on the ridge between the proposed Dutch Gulch and Tehama reservoirs (Kroeber 1925:354; DuBois 1935:Map 1; Goldschmidt 1951:315, 1978:341; LaPena 1978:324; Guilford-Kardell and Dotta 1980:36; Knudtson 1977:Map in Pocket). Maps 10 through 14 and Tables 1 and 16 illustrate the areal extent of much of the comparative data used in the Dutch Gulch and Tehama lakes analyses. Most of the archeological surveys have been in the foothills surrounding the northern end of the Sacramento Valley. Within the last 15 years, over 114,000 acres have been surveyed in four large blocks. These include approximately 40,000 acres in the Southern Cascades foothills southeast of Red Bluff (Map 10, No. 11); 28,000 acres at Glenn-Newville in the interior Coast Range west of Willows (Map 10, No. 15); 24,000 acres at the proposed Dutch Gulch Lake in the southern Klamath Mountains foothills southeast of Redding (Map 10, No. 9); and 22,000 acres at the proposed Tehama Lake, which is at the point of articulation between the coast range and the Klamath Mountain foothills west-northwest of Red Bluff (Map 10, No. 10). Various other projects have led to the investigation of thousands of additional acres (e.g., Shasta-Trinity, Lassen, and Mendocino national forests; United States Army Corps of Engineers at Black Butte Lake; Bureau of Land Management, Pacific Gas and Electric Company, and California Department of Transportation at various locations). The majority of archeological sites test excavated using accepted professional methods have been by Shasta College in the Redding area, CSUS in the Southern Cascades foothills, and CSUC in the Chico vicinity. Many of the excavations by Shasta College and CSUC were in the Sacramento Valley, and provide data useful in interpreting the cultural resources identified in the surrounding foothill areas.

The data obtained from the Tehama Lake portion of the Cottonwood Creek Project is applicable to much of Kowta's 1975 research design. Of particular interest are questions regarding the suggested location of the ethnographic boundary between the Bald Hills Wintu and Hill Nomlaki. The data further provide the opportunity to investigate the prehistoric and historic settlement and use of what appears to be an ecologically marginal locality.

Results of the Research Design Application

Kowta's research design has been reprinted in its entirety in the Dutch Gulch Lake report (Johnson and Theodoratus 1984a:Appendix C) and is also available from the California Archaeological Site Inventory Information Center at CSUC. Only those portions germaine to data recovered from the Tehama Lake study area will be used in this report. (The following correspond by number to Kowta's test implications.)

Test Implications

1. Kowta suggests that artifactual complexes similar to Borax Lake should be found along the foothill rim of the Sacramento Valley in the time period prior to 3000 B.C. The single, highly weathered wide-stemmed projectile point found during the 1982 survey is the only artifact that might represent this time period. The 11 manos and four metates found during the survey do not appear to be as old as 3000 B.C., and no artifacts of an age greater than 2000 to 2500 years came from the six sites which were test excavated in 1982-83. Recent excavations farther south at Black Butte Lake (CA-TEH-10) failed to yield any artifacts older than A.D. 500 to 900, though a chipped stone crescent from a surface location may be considerably older. Data presently available suggest that prior to 3000 B.C., a very small and widely dispersed population occupied the northern Sacramento Valley, leaving few artifacts. It is anticipated that the majority of material recovered archeologically in the project area will represent occupation and use after 3000 B.C.

2. The suggestion that cultural complexes exhibiting a riverine or marshland adaptation should occur in the central valley around 3000 B.C. is not verified by the current Tehama Lake data. The sites from this portion of the Cottonwood Creek survey in fact may provide a more readily available data base on the cultural complexes existing before 2000 years ago than do the Dutch Gulch Lake sites. Large village sites characteristic of a riverine adaptation (such as CA-SHA-290/H and -291/H) apparently do not exist on the surveyed portions of South Fork Cottonwood Creek and Dry Creek. The probable direct link between the late occupants of the Sacramento River (at such sites as CA-TEH-58, CA-SHA-207, -237, and -266) and the villages on the Middle and North forks of Cottonwood Creek, and the apparent lack of similar connections on South Fork Cottonwood Creek is likely the result of the absence of a well developed riparian habitat and a smaller water supply on the South Fork. The apparent

greater age of many of the Tehama Lake sites may indicate that there was less activity in the locality by a later population with a riverine-oriented subsistence pattern.

3. The initial use of acorns in northern and central California has yet to be demonstrated. Kowta assumed that their use began subsequent to 3000 B.C. and that a resulting population increase should be evident in the valley. This is valid, based on the Carbon 14 date of 2290 B.C. on a cache of burned acorns from CA-BUT-233, but nothing has been found to support his contention that the use of acorns was adopted at a later date by foothill populations. On the contrary, it is quite possible that the occupants of the Llano Seco Site (CA-BUT-233) were an early acorn using population which, while living on the Sacramento River, did not have an overall technology allowing them to make use of many of the available resources. In fact the first major use of the northern Sacramento Valley on a regular basis (possibly by ancestors of the Yana and Pomo) may not have occurred until after 2500 B.C. It is also possible that earlier evidence of the use of the valley might lie buried under recent alluvium. Not until A.D. 200 to 500 did a population (possible ancestors of the Wintu and Nomlaki) move into the region with a fully developed capability of maximizing the available riverine resources. The 25 hopper mortars and 45 flat-ended cobble pestles from the Tehama Lake sites undoubtedly represent a pattern of acorn exploitation, reflecting the intrusion of the ancestors of the Wintu and Nomlaki into the region (Johnson and Theodoratus 1984a:194, 205-207).

4. Data generated by the Southern Cascades Archeological Project supports the proposition that in areas occupied historically by populations who spoke languages of the Hokan stock (e.g., Pomo, Yana), there should be a continuity of occupation from the pre-3000 B.C. period to recent times. Kowta further suggests that evidence of post-3000 B.C. movement into these areas may indicate that people who spoke languages of the Hokan stock were displaced to less desirable lands. The presence of manos and metates, as well as large numbers of hopper mortars and flat-ended pestles, suggests the same type of change noted throughout the rest of north central California was also occurring in the Tehama Lake area (Edwards 1969; Clewett and Sundahl 1983; Johnson 1984b). However, the presence of hopper mortars and pestles is not complete evidence of the replacement of one population by another. The continued use of manos and metates by the Yana and their ancestors, and the absence of this trait in known Wintu and Nomlaki sites is the key factor. Farber and Neuenschwander (1983:84) and Eric Ritter (BLM Redding District archeologist, who reviewed the Tehama Lake draft report) have suggested that manos and metates are found at late Wintu sites. The evidence, however, has not been presented in detail, and based on numerous test excavations at Wintu sites on or near the Sacramento River and at 13 sites in the Dutch Gulch/Tehama lake areas of the adjacent foothills, manos and metates do not appear to have been used regularly by these people. DuBois (1935:126-127) states emphatically that the Wintu did not use manos and metates. In addition, the presence of sandstone and scoria arrowshaft

abraders in most of the test-excavated Wintu sites, and their virtual absence from Yana sites, again suggests a lack of continuity in the Tehama and Dutch Gulch Lake areas.

5. Another premise of the 1975 research design concerns evidence of population dislocation and replacement sometime after 3000 B.C. in areas historically occupied by speakers of the Wintuan and Maiduan language families. South Fork Cottonwood Creek and Dry Creek appear to have the potential to shed light on this test implication. The presence of manos and metates, a few older projectile point types, and perhaps the large number of unifacial core tools may represent evidence of a pre-Wintuan, possibly proto-Yana population.

The ecological factors limiting the use of this area by peoples with a riverine adaptation may have allowed much of the earlier cultural deposit to remain close to the surface, instead of being buried as may have been the case in the Dutch Gulch area and along the Sacramento River. Many of the sites at Tehama Lake, therefore, might contain data useful in determining the nature of the replacement of the ancestors of the Yana (or other possible Hokan language-stock speakers) by the ancestors of the Wintu and Nomlaki. The dislocation, however, probably did not occur until from 1500 to 2500 B.C., and may not have occurred in the southern Klamath Mountains foothills until after A.D. 300 to 500.

6. Treganza (1959) advanced the idea that the Wintu did not expand into the western limits of their territory until within the last few hundred years before Euro-American contact. Jensen and Farber (1982:193-194) hypothesized that Component III at CA-TRI-205 may represent a Wintu movement into an area that was being abandoned by the ancestors of the Chimariko (possibly of Hokan linguistic stock) who left the artifacts associated with the earlier Component II level at the site. This supports Kowta's test implication that population movement of members of the Wintuan and Maiduan language families (of the Penutian linguistic stock) into the mountains should be reflected in the succession of site dates at different distances from the central valley floor. He further states that the earlier cultural resources in the foothills should be more like those in the valley than later ones. At Dutch Gulch there was no apparent chronological difference between Penutian settlement along the Sacramento River and that near Gas Point, 20 miles to the west (Johnson and Theodoratus 1984a:197). The information currently available from Tehama Lake is not sufficient to address this question, but it seems logical that any people moving into the foothills as far as the Bald Hills would have at least explored South Fork Cottonwood Creek and Dry Creek, if they did not in fact settle along their banks.

The Wintu and Nomlaki probably began their expansion into the hills past Dutch Gulch and Tehama lakes between A.D. 500 to 900, and by A.D. 1500 had progressed almost to the limits of their historically known territory (Johnson and Theodoratus 1984a:207-208). If the population figures of from 28,000 to 34,000 individuals suggested by Guilford-Kardell

and Dotta (1980:78) are correct, it is possible the Wintu were in a position to expand aggressively into the territory of groups such as the Chimariko, Yana, and Okwanuchu. The competitive edge possessed by the ancestors of the Wintu when they entered north central California may have allowed rapid expansion of population and territory, so that the relatively sparse populations of surrounding groups were unable to prevent them from occupying their territory. Based on the work of Johnston (1975, 1978), Johnson (1983c), and Johnson and Theodoratus (1984a:201,209), it appears that the Wintu were continuing to pressure the Southern Yana, who were abandoning the Southern Cascades foothills, and who may have ceased to exist as a cultural entity even if Euro-Americans had not hastened their virtual extinction by 1870.

7. Kowta suggests that valley areas historically occupied by people who spoke languages of the Pentutian stock should exhibit a continuity of occupation after 3000 B.C. Data assembled during the analysis of the Dutch Gulch Lake prehistoric resources suggest that the 3000 B.C. date may be too early for even the first Wintuan speakers to have migrated into central and north central California, where the ancestors of the Wintu and Nomlaki apparently did not establish themselves until sometime after A.D. 300 to 500. At Tehama Lake, the size and shape of house pits with central fire pits, and the large quantities of fire-fractured rock, Gunther-barbed projectile points, arrowshaft smoothers, and hopper mortars and flat ended pestles, all suggest a direct relationship with the Shasta Complex (Sundahl 1982a,b), which has been interpreted by Sundahl (1982a) and Johnson and Theodoratus (1984a:197) to represent Wintu prehistory. Whatever continuity may exist in the South Fork Cottonwood Creek area is not well documented. The six sites tested thus far have been disturbed not only by Native American reuse of site areas, but also by ground squirrels and recent and historic land modifications.

8. The importance of anthropometric studies can not be over-emphasized. Some data already exist for nearby speakers of Hokan language stock (Breschini and Haversat 1980; Johnson 1983b), and numerous skeletons have been recovered from Wintu sites (Dotta 1964; Dotta and Hullinger 1964; Treganza 1954; and Treganza and Heickson 1960). The Dutch Gulch Lake research suggested that burials could be expected in most of the prehistoric middens on the Middle and North forks of Cottonwood Creek (Johnson and Theodoratus 1984a:197). Work by Treganza and Heickson (1969) at CA-GLE-10, and by CSUS in 1983 at CA-TEH-10, led to the recovery of a substantial number of interments from Nomlaki territory which will provide additional comparative data. The comparison of the skeletal material from these three areas, along with data generated by Breschini and Haversat (1980) from other populations and from ethnographic groups by Gifford (1926), would undoubtedly be useful in helping distinguish between areas occupied by speakers of languages belonging to the Hokan and Penutian stocks.

9. Kowta's interest in the use of lexicostatistical data is well founded. Numerous anthropologists and other linguistic researchers have extensively studied the Hokan and Penutian language stocks. This has led to an annual

Hokan and Penutian conference to further the study of these two linguistic entities. In recent years, doubt has been raised concerning the existence of these language groupings, and continued linguistic research will hopefully resolve the issue. No consultants could be located who were conversant in either the Bald Hills or northern Hill Nomlaki dialects and knowledgeable about the South Fork of Cottonwood Creek area. Any lexicostatistical data relevant to the project area will have to come from already existing sources or future consultants. As demonstrated by Whistler (1977), Shipley (1978), and Baumhoff and Olmsted (1963) this would be a fruitful line of research if appropriate information can be found.

10. The assumptions of Fowler (1972) and Kowta that there should be a similarity of linguistic terms for acorn grinding among Wintuan and Maiduan speakers and more diversity among proto-Yanan, Pomoan and other suggested speakers of languages of the Hokan stock is probably correct. It is also likely, as suggested by Whistler (1977), that the analysis of cognate terms pertaining to other environmentally related lexical terms may reveal clues as to the original homeland of Wintuan and Maiduan speakers. If enough linguistic data can be assembled, it may be possible to suggest the nature of the long term relationship between the Bald Hills Wintu and the Nomlaki, as well as the relationships between these groups and the Yana. Whistler, for example, suggested that the Patwin Wintun arrived in California long after the Miwok, and borrowed numerous names for plants and animals from them. The Tehama Lake Project has yet to generate data which would facilitate this kind of analysis. Useful information may be found in the California Survey of Indian languages at the UCB, and should be consulted by investigators concerned with this aspect of the research.

11. Kowta's final test implication is perhaps the most useful. During the Dutch Gulch Lake analysis it was possible to construct a list of some Wintu and Yana "marker traits." These were based primarily on archeological evidence, but they can be derived equally well, and in some cases even better, from the ethnographic record. Over a period of years, Sundahl (1979, 1982a,b) and Clewett and Sundahl (1980, 1982a,b,c) have developed an extensive list of traits associated with late Wintu occupation sites; they also have begun to formulate a similar list for the Yana. The Southern Cascades Archeological Project (Johnson 1983a,b, 1984; Wiant 1981; Greenway 1982) has led to a determination of numerous Yana "marker traits" which should further facilitate the development of an understanding of prehistoric settlement patterns in the north central part of California. As discussed by Johnson and Theodoratus (1984a:198), numerous other investigators have provided data relevant to this particular issue. The information derived from the 1982 survey has reinforced the significance of some Wintu traits, while the analysis of the data from the 1983 test excavations will prove useful (Table 17).

The 1982 research at Tehama Lake, while not as fruitful as that at Dutch Gulch in regard to Kowta's test implications, was able to provide useful data. Perhaps of

C-074772

even greater importance was the identification of several avenues of research which might be profitably pursued through additional work in the Tehama Lake area. The test implications associated with Kowta's research design have many applications, and at least portions of it can be incorporated into a wide range of prehistoric research in north central California.

The Bald Hills Wintu and Nomlaki/Wintun Boundary

During the Dutch Gulch Lake research, the location of the boundary between the Bald Hills Wintu and Nomlaki was considered of secondary importance. Most investigators have placed the boundary on the ridge between the Middle and South forks of Cottonwood Creek. Kroeber (1925:354, 1932), DuBois (1935:Map 1), Goldschmidt (1951:315, 1978:341), Knudtson (1977); LaPena (1978:324), Guilford-Kardell and Dotta (1980:36) and Johnson and Theodoratus (1984a:Map 2) all placed the boundary in or near this location. Kroeber, however, states that Cottonwood Creek is usually mentioned as the boundary by the Wintu, and is used in the absence of more exact information. It would appear that, as time has passed, this general boundary has become solidified. During the Dutch Gulch Lake research, information surfaced which suggested to Johnson and Theodoratus (1984a:199) that the Tehama Lake area, and more specifically the ridge between the Middle and South forks of Cottonwood Creek, may have been a peripheral area to the main population centers of these speakers of languages belonging to the Penutian stock. George "Ed" Grant (Bald Hills Wintu) indicated that his immediate ancestors used the area and went as far south as "Grindstone" to meet with other Indians. DuBois (1939:Figures 5-6) indicated that, during the 1870s, dancers came from Grindstone in Nomlaki territory and performed dances at Gas Point, Watson Gulch and other locations in Wintu territory.

Archeologically and geographically there were also conditions that left doubt as to the above placement of the boundary. The logical direction of movement within the area of South Fork Cottonwood Creek would seem to be southwest to northeast. This would be by far the easiest route to the nearest larger streams (Middle Fork Cottonwood Creek), and with little difficulty, on to the Sacramento River. Travel in any other direction would be over a series of steep-sided hills and gulches that were often covered with a heavy growth of brush. It does not seem likely that a population, laden with much of their worldly goods and including both infants and the elderly, would opt for movement through difficult terrain when an easier route was available. Therefore, South Fork Cottonwood Creek would seem to fall within a logical extension of Bald Hills Wintu territory.

Treganza's excavation at CA-TEH-58 on the Sacramento River, just northeast of Red Bluff, also suggested the Wintu/Nomlaki boundary needed to be reconsidered (1954, 1963). Even though he did not make an issue of the boundary location, he considered the burials and associated artifacts as representative of Wintu practices. In particular, he noted the occurrence of paired sandstone arrowshaft smoothers, which were virtually identical to those found at many other excavated sites in Wintu territory, and are conspicuously absent from the Nomlaki and Southern and Yahi Yana areas (Johnson 1984b). The fact that by 1963 Treganza had worked at numerous sites in both Wintu and Nomlaki territory lends credence to his judgement that CA-TEH-58 was indeed a village with possible Bald Hills Wintu affiliation (Treganza 1954, 1958, 1959, 1963; Treganza and Heickson 1960, 1969).

Finally, the work of C. Hart Merriam and Stephen Powers among the Wintu and Nomlaki suggests that a reevaluation of the boundary between these two groups is in order (Map 14). Based on ethnographic fieldwork in 1903, Merriam placed the boundary just south of Red Bluff on Red Bank Creek (1966:Map 5; 1967b:Map 5; [Map 14]). In reality, Merriam's placement of the boundary 12 to 15 miles further south reflects a difference between him and Kroeber. All of the other researchers perpetuated Kroeber's placement and used it in their own monographs, making the boundary more accepted. One wonders why Merriam's data was not used by Kroeber and later scholars, and why, in particular, a reevaluation was not considered after the publication of the data in 1966 and 1967. The first part of the question is easy to understand: Merriam and Kroeber were often in disagreement, and little if any information was shared by them. Kroeber felt Merriam was not properly trained and could not adequately record Indian words and meanings. Kroeber's work was accomplished later in time, and DuBois and Goldschmidt, who were his students, apparently did not have access to Merriam's information. Both DuBois and Goldschmidt did their fieldwork in the 1930s and could find no consultants who were familiar with the South Fork Cottonwood Creek area. Later investigators in north central California had no reason to doubt Kroeber's suggested boundary, and have consistently used it in subsequent publications. After Merriam's death, most of his field notes were eventually deposited at the Department of Anthropology at UCB, and the Smithsonian Institution in Washington, D.C. Much still remains unpublished, and only since 1955 have selected portions of the Berkeley material been edited and made available. The critical Wintu-Nomlaki data was not made available until 1966-67.

The first hint of a different boundary, however, is evident as early as 1877 when Powers states:

> The nucleus or home of the nation [Wintun] on Cottonwood Creek, and here they are Dau-pum Win-tun (Valley Indians). On Ruin River [possibly South Fork of Cottonwood Creek], a tributary of Cottonwood, are the Num-mok (Western People). On Stony, Thomes, and Elder Creeks, in the mountains and on the edge of the Plains, are the Noam-lak-ki; on Lower Stony Creek, the Nu-i-mok (Southern People).... On Lower Elder and Thomes Creeks are the Pu-i-mok (Eastern People), who also lap over on the east side of the Sacramento, and extend in a strip about a mile wide from Rock Creek up to the mouth of Pit River [Powers 1976:230].

The placement of the northernmost Nomlaki on Elder Creek is in close agreement with Merriam's boundary on Redbank Creek, while it is not clear what linguistic affiliation the Num-mok may have had.

Reinforcement of the existence of a different boundary came in 1966 with the publication by the UCB Archaeological Survey of Merriam's map of the "Distribution of Tribes of Wintoon Stock." The text supporting the boundary (Merriam 1967b:260-261, Map 5) has been generally unavailable until recently. A new evaluation of the boundary between the Bald Hills and Nomlaki is in order.

C-074774

1. The discrepancy is between Kroeber on one hand, and Merriam and Powers on the other, since other investigators, without access to Merriam's data, adopted Kroeber's placement of the boundary.

2. The data of Merriam and Powers was collected earlier than Kroeber's, and might reflect the situation at a time when some consultants still remembered the area in question.

3. Kroeber's information on the Wintun is most extensive for the Patwin (Southern Wintun); he apparently had little data on the northern Nomlaki and Bald Hills Wintu. Merriam, on the other hand, appears to have a much larger body of information on the area between Red Bluff and Redding.

4. Merriam and Powers identified the locality as that occupied by the Daw-pum, while Guilford-Kardell and Dotta (1980:80) identified the southernmost Stillwater Wintu as the DAW POM.

5. Artifacts found at CA-TEH-58 just northeast of Red Bluff suggest a close cultural affinity to known Wintu sites and a lesser relationship to Nomlaki sites further south.

6. The geographic position of South Fork Cottonwood Creek and its tributaries suggests that the logical affiliation for late prehistoric populations living on its banks was with the Bald Hills Wintu to the north.

7. Recent survey and test excavations on and near South Fork Cottonwood Creek have yielded nothing which can be specifically identified as being of Nomlaki derivation. The presence of a sandstone arrowshaft abrader and rock-lined prepared fire hearths, similar to those found at several Wintu sites further north, suggests a cultural affiliation in that direction.

8. Burial practices appear to differ between the Wintu and the Nomlaki. Graves in Wintu territory tend to be disturbed little by later inhumations, are often covered with rock slabs and contain little evidence of fire; also, the skeletons were not bound tightly enough to break bones. Recent Black Butte Lake investigations at CA-TEH-10, ethnographic data collected by Merriam from near Colusa, and conversations with occupants of the Nomlaki Grindstone Rancheria suggest the following: 1) former graves were often disturbed by later inhumations; 2) rock slabs seldom covered interments; 3) fires were occasionally burned in or near the graves; and 4) skeletons often exhibited broken bones from having been bound tightly with skins and ropes. In Nomlaki territory, the mourners would sometimes dance on the body as layers of earth were added to the grave, a practice which resulted in crushed skulls and other bones.

The known presence of graves at some sites in the Tehama Lake portion of the Cottonwood Creek project area, and the presence of certain artifacts and feature types, ultimately may provide additional insight into the placement of the boundary between the Nomlaki and the Wintu. Current evidence from the 1982-83 fieldwork and a reevaluation of earlier data suggest that there may be some validity to

Merriam's placement of the boundary on Red Bank Creek south of Red Bluff. A study of linguistic usage of such terms as Daw-pum and DAW-POM might also prove useful. For example, on upper Elder Creek, Merriam has the wi-e'-ker-ril and Kroeber the wai-kewetl, which are both placed in Hill Nomlaki territory. Merriam (1967b), however, uses the term as an area name, and Kroeber (1932) as a tribelet name. There is also variance between these two investigators in the placement of dialect boundaries elsewhere in Wintun territory. It appears that Merriam spent more time in Nomlaki territory than did Kroeber; the latter did most of his research among the Patwin farther south. The field notes of Harrington, Merriam, and Kroeber have been, or will soon be, made available to interested scholars. Additional information concerning the Wintu and Nomlaki boundary may be gleaned from these sources.

Ecological Considerations

Another research concern centers on the suggestion that the Tehama Lake area was ecologically a less desirable area to live in, thus supporting a smaller prehistoric population. It was also suggested that it was culturally peripheral to the more favorable environment of the Middle and North forks of Cottonwood Creek and the Sacramento River. Johnson and Theodoratus (1984a:198-199) point out some of the differences between these areas, and offer suggestions as to why South Fork Cottonwood Creek supported a smaller population. Wiant (1981:105-143) has challenged the view that areas similar to Tehama Lake were ecologically poor, therefore inhibiting population growth. In a major review of the available archeological, ethnographic, and selected environmental data from the Southern Cascades foothills, Wiant suggests that the Southern Yana and their ancestors did not suffer from low availability of major food items resulting in periodic starvation. He suggests that alternate models of settlement and subsistence might better account for the low Yana population density and lack of elaboration in their material culture. According to Wiant, the unwritten model of Southern Yana settlement and subsistence has been based on the assumptions that deer and fish resources within Yana territory were low, and periodic blue oak acorn crop failures had a devastating effect on the Native American population. Through the accumulation of considerable data, Wiant suggests that, while in fact the numbers of deer may have been low, the quantities of fish (primarily salmon) and acorns were much higher than anticipated by archeologists working in the area. He argues that the Southern Yana, with a few days' work in a good acorn year, could gather enough to last up to three years, thus negating the assumption that these Indians went through periods of low food availability.

If Wiant's assumptions are correct, why did the Yana have such a low population? Why were they apparently being forced out of traditional territories by the Wintu, and perhaps by the Nomlaki and Maidu as well? Why do their myths imply they had been overlooked by their creator? Their world view suggests that they considered all of the surrounding population taller and more handsome, and that the Maidu, Nomlaki, Wintu, Achumawi and Atsugewi had a better resource base to exploit and thus were much better off. In the view of the Yana, when they and the surrounding peoples were created, they all came from a bunch of sticks. Because they were the tallest and most attractive people and had the best resource base, the Achumawi had been made from the longest, smoothest, and straightest sticks. As the quality of the sticks deteriorated, so did the physical traits of the other populations

and the quality of the territory they occupied. Finally, when it came time for "Silver Fox" to create the Yana, all he had left were short, dark, bent, coarse sticks, thus explaining to the Yana their short stature, darker skin, and other characteristics apparently considered less desirable. If Wiant's observations concerning the potential resource base available to the Yana are correct it seems illogical that they would feel they had less desirable physical traits and a less productive territory. Wiant does suggest other possible explanations for this disparity in population size, including such factors as socio-political relationships and technological differences.

The questions raised by Wiant are worth pursuing, not only for the territory occupied by the Southern Yana, but for the Dutch Gulch and Tehama lakes region as well. At Dutch Gulch and along the Sacramento River the opportunity exists to explore the riverine adaptation of the Wintu, which supposedly gave them a competitive advantage over the Yana. At Tehama Lake we may be able to explore a settlement system, similar to that practiced in Southern Yana territory, which is supplanted by members of a riverine-oriented society using an ecologically less desirable area than Dutch Gulch Lake. An issue which might be studied, for example, is the possible effect of the available resource base on population size, settlement pattern, house size, evidence of ceremonial gatherings (dance houses), and the quantity and complexity of manufactured objects. Additional research in the Tehama Lake area has the potential to enhance our knowledge of the various settlement and subsistence systems which are beginning to emerge through anthropological research in north central California.

Summary

Johnson and Theodoratus (1984a:200-202) have recently summarized the potential significance of the Dutch Gulch and Tehama lakes portions of the Cottonwood Creek study to our knowledge of the prehistory of north central California. Additional research at Tehama Lake would complement work at Dutch Gulch, in the Southern Cascades foothills, and elsewhere in this region. Though it does not appear ever to have been a major population center, various groups used the area periodically over the last several thousand years. Information from South Fork Cottonwood Creek is applicable to many of Kowta's test implications, and has relevance to the question of the boundary between the Bald Hills Wintu and the Nomlaki. It also should help delineate many of the questions concerning resource exploitation and population dynamics of semi-sedentary riverine-oriented groups such as the Bald Hills Wintu, and groups such as the Southern Yana who practiced seasonal lowland-highland migration. Hopefully, obsidian sourcing and detailed studies of other trade items will further the research stated above.

C-074777

KEY FOR MAP 10

1. Fall River Valley Survey (Johnson 1974)

2. Lake Britton Survey (Johnson and Johnson 1969)

3. Upper Sacramento River Test Excavations (Raven et al.1983)

4. Trinity Reservoir (Clair Engle Lake) (Treganza 1958, 1959).

5. Shasta Lake (Smith and Weymouth 1952)

6. Clikapudi and Salt Creeks (Clewett and Sundahl 1980, 1982a; Sundahl 1979)

7. Whiskeytown Reservoir (Treganza and Heickson 1960; Johnson and Skjelstad 1974)

8. Redding Vicinity (Smith and Weymouth 1952; Treganza and Heickson 1960; Treganza 1963; Dotta 1964; Dotta and Hullinger 1964; George 1981; Sundahl 1982a)

9. Proposed Dutch Gulch Lake (Leonard 1969; Jensen 1978; Johnson and Theodoratus 1984a; George and Mertz 1983)

10. Proposed Tehama Lake (Johns 1969; Jensen 1978)

11. Southern Cascades Archeological Project (Johnson and Wiant 1975; Johnson 1975; Wilson 1980; Wiant 1981; Greenway 1982; Johnson 1983a,b, 1984b)

12. Thomes Creek (Edwards 1969)

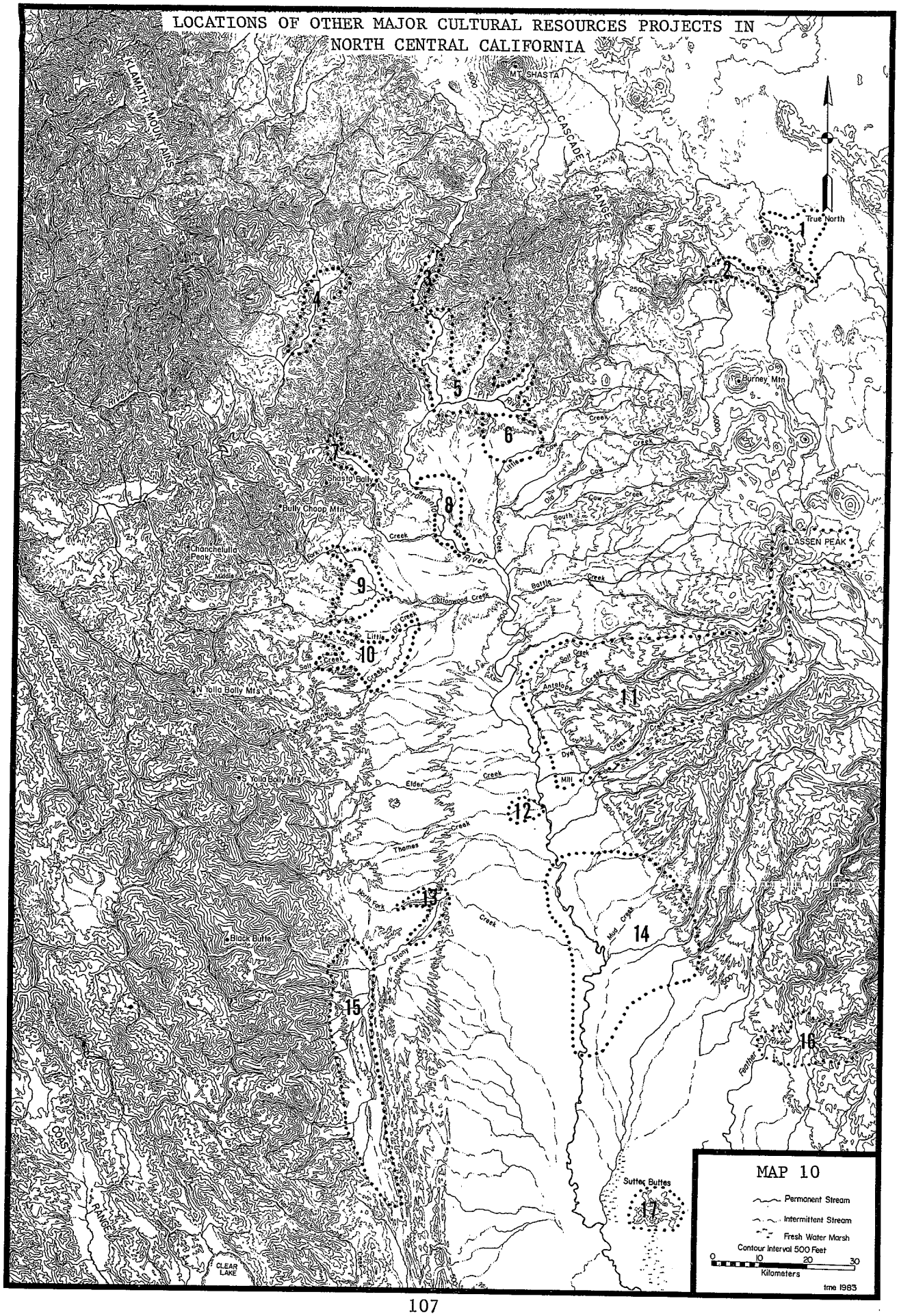
13. Black Butte Lake (Mohr 1949; Treganza and Heickson 1969; Woolfenden 1970; Johnson and Theodoratus 1984b; Johnson, Dondero and Blount 1984

14. Chico Vicinity (Chartkoff and Chartkoff 1968, 1983)

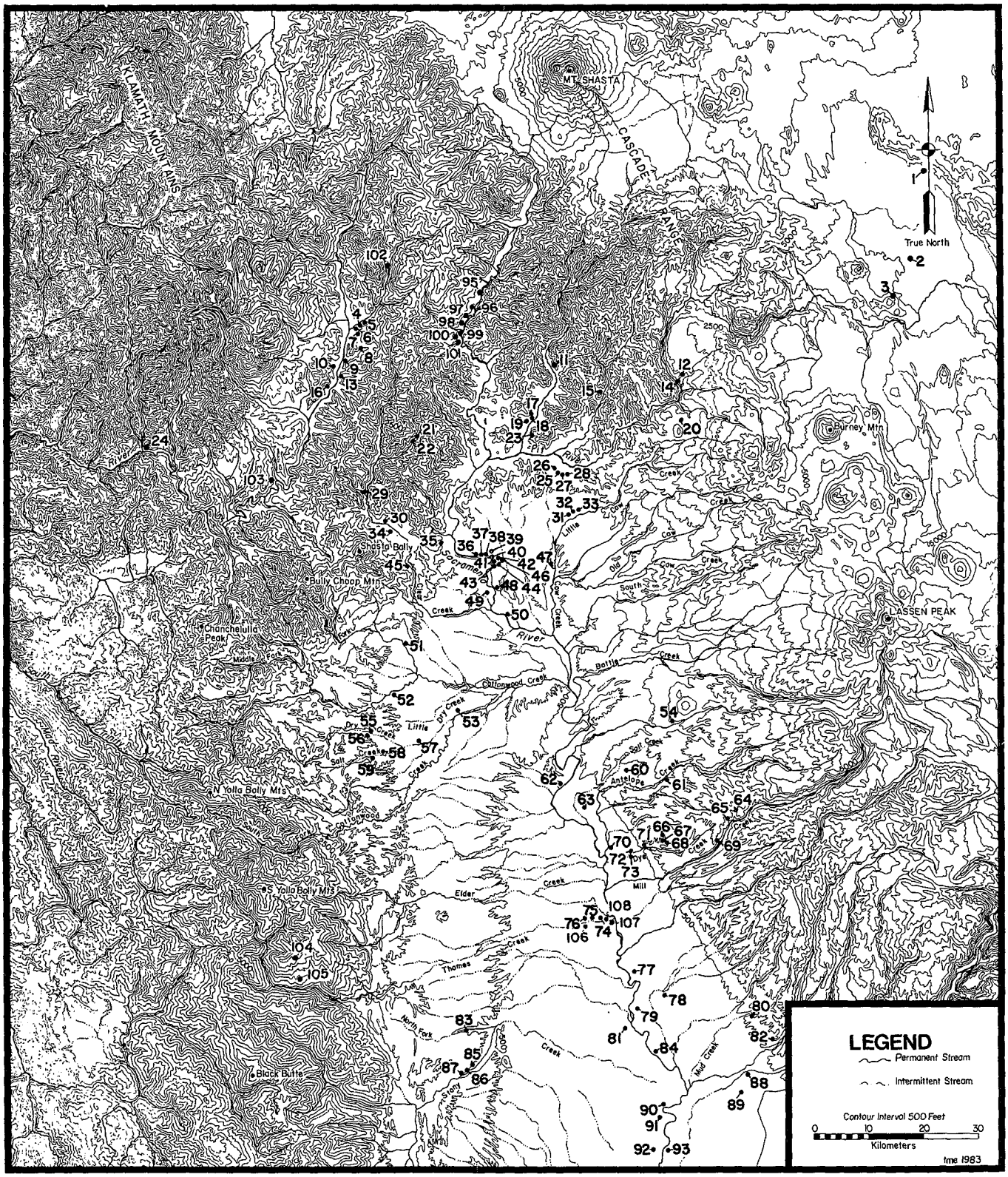
15. Proposed Thomes-Newville Lake (Treganza and Heickson 1969; Chartkoff and Childress 1966; Bard, Busby and Kobori 1983)

16. Oroville Lake (Olson and Riddell 1963; Jewell 1964; Ritter 1968, 1970)

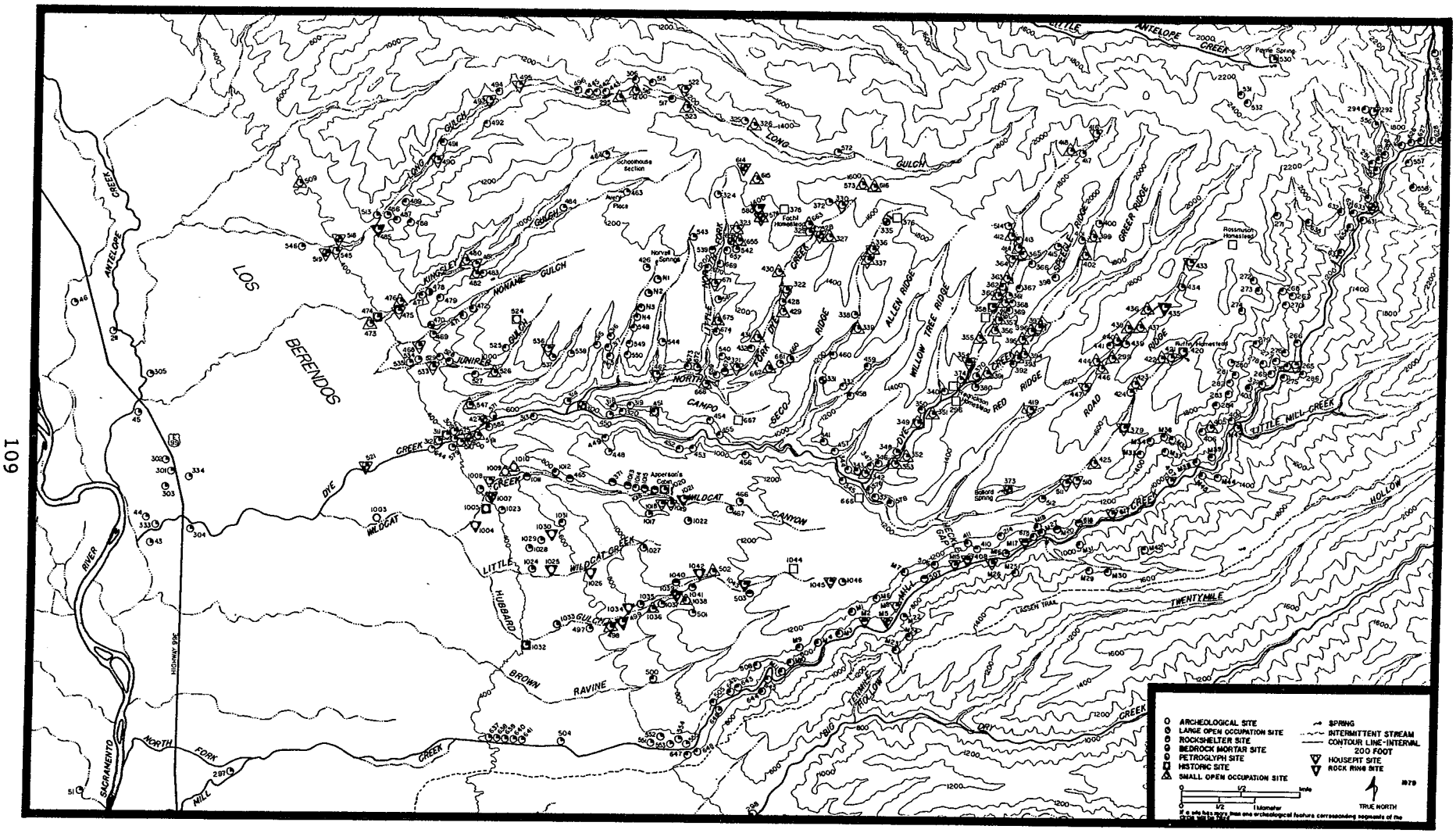
17. Sutter Buttes (Jensen 1970)



MAP 11



LOCATION OF TEST EXCAVATED PREHISTORIC AND PROTOHISTORIC ARCHEOLOGICAL SITES CONSIDERED IN THIS STUDY
(See Table 16 for number identification)

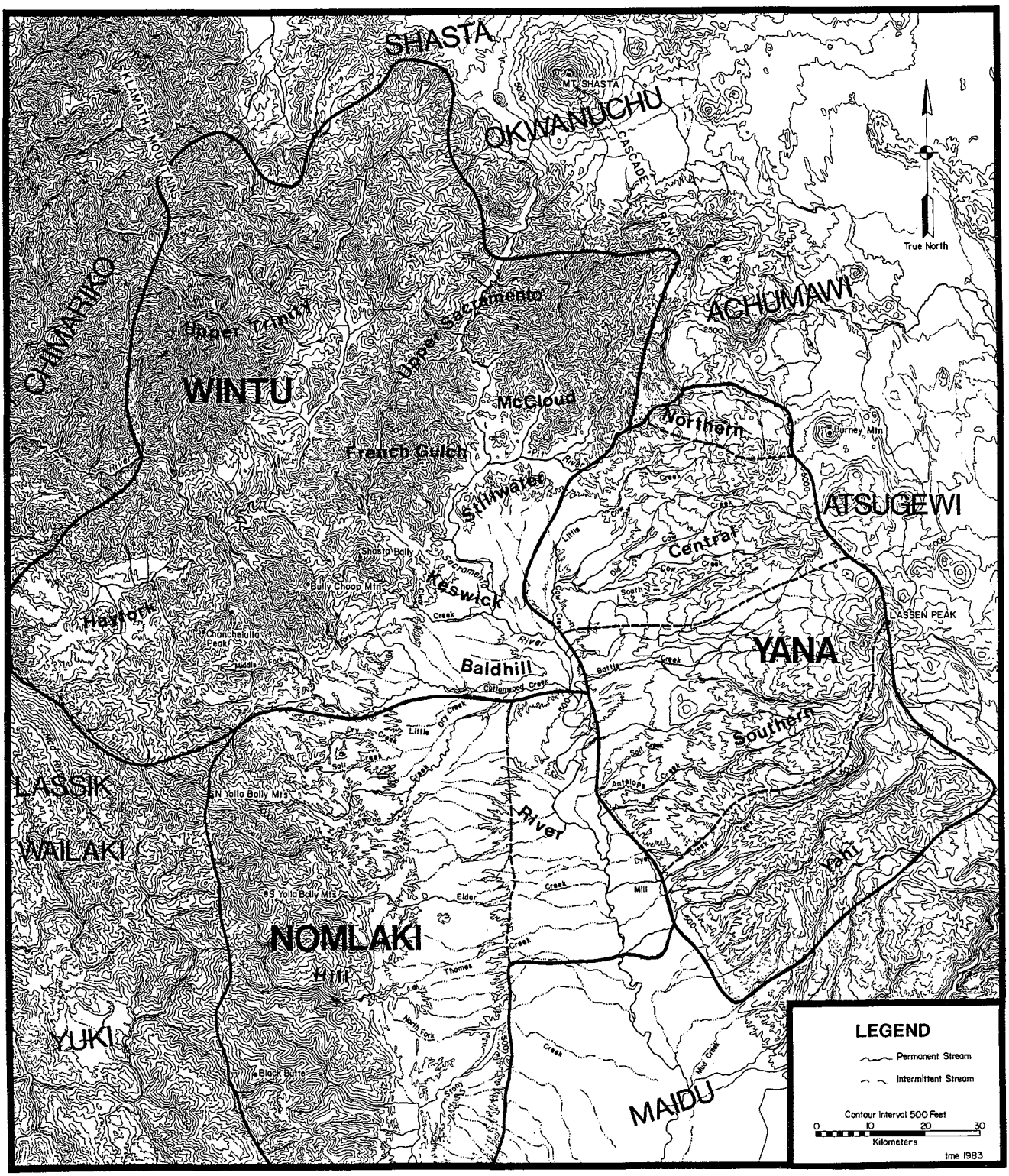


MAP 12

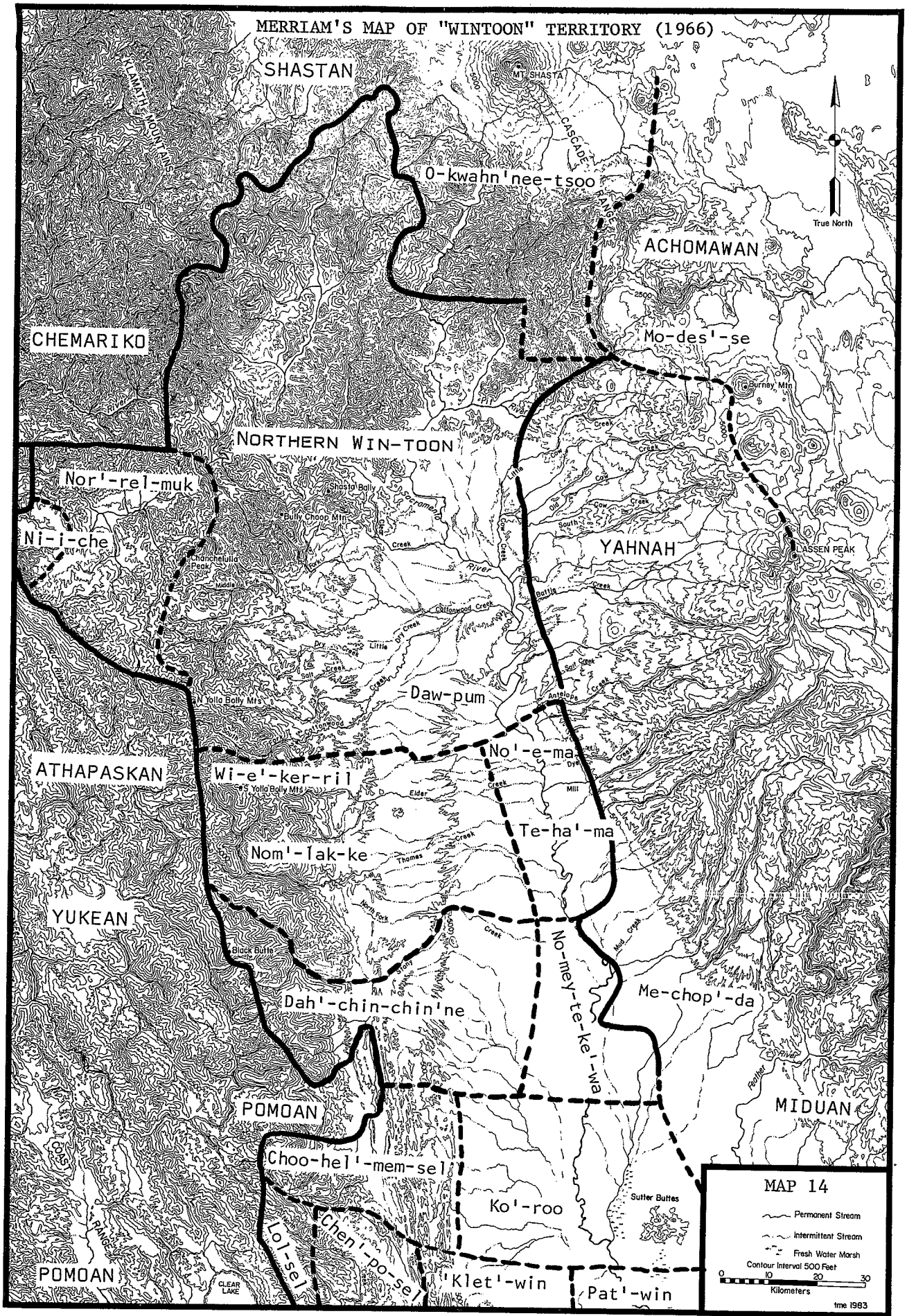
LOCATION OF PREHISTORIC SITES IN A PORTION OF THE SOUTHERN CASCADE FOOTHILLS

C-074781

MAP 13



ETHNOGRAPHIC POPULATIONS OF
THE NORTHERN SACRAMENTO VALLEY AND ADJACENT MOUNTAINS
(Ref.: DuBois 1935; Goldschmidt 1951; Guilford-Kardell and Dotta 1980;
Kroeber 1925, 1932; Merriam 1957, 1966-67; Powers 1877; Sapir and Spier 1943)



C—074783

C-074783

TABLE 16

PREHISTORIC ARCHEOLOGICAL SITES
TEST EXCAVATED IN NORTH CENTRAL CALIFORNIA
(Sites Listed North to South)

Map No.	Site Number	Principal Investigator	Year Tested	Storage	Accession No.
1	CA-MOD-250	Martin Baumhoff	1960	UCD	1-
2	CA-SHA-162	James Dotta	1962	RMAC	
3	-52	James Bennyhoff	1953	UCB	1-206-
4	CA-TRI-112	Adan Treganza	1958	UCB	1-28175+
5	-57	Adan Treganza	1958	UCB	1-190403+
6	-113	Adan Treganza	1958	UCB	1-
7	-45	Adan Treganza	1958	UCB	1-190598-627
8	-70	Adan Treganza	1958	UCB	1-190013+
9	-47	Adan Treganza	1957	UCB	1-146690-673
10	-58	Adan Treganza	1957	UCB	1-146764-924
11	CA-SHA-49	Adan Treganza	1964	SFSU	?
12	-257	Martin Heicksen	1962	UCB	1-
13	CA-TRI-49	Adan Treganza	1957	UCB	1-
14	CA-SHA-143	Martin Heicksen	1962	UCB	1-
15	-475	S. Edward Clewett	1971-81	SC	23
16	CA-TRI-55	Adan Treganza	1957	UCB	1-
17	CA-SHA-21	C. E. Smith	1942	UCB	1-
18	-22	C. E. Smith	1942	UCB	1-
19	-20	C. E. Smith	1942	UCB	1-
20	-260	Martin Heicksen	1962	UCB	1-
21	-543	Peter Jensen	1976	CSUC	
22	-288	James Dotta	1967?	RMAC	
23	-48	Louis Payen	1965	UCD	
24	CA-TRI-205	Peter Jensen	1980-81	CSUC	
25	CA-SHA-228	S. Edward Clewett	1979-81	SC	258-114-
26	-229	S. Edward Clewett	1979	SC	258-115-
27	-230	S. Edward Clewett	1980-81	SC	258-116-
28	-231	S. Edward Clewett	1979-81	SC	258-117-
29	-192	Keith Johnson	1976	CSUC	
30	-205	Adan Treganza	1959	SFSU	186
31	-471	S. Edward Clewett	1970-71	SC	5-
32	-472	S. Edward Clewett	1970-71	SC	6-
33	-474	S. Edward Clewett	1970-71	SC	9-
34	-184	Adan Treganza	1959	SFSU	
35	-491	Ray Hullinger	1960-62	?	
		Peter Jensen	1979	CSUC	
36	-46	Donald Boyd	1960s	RMAC	
37	-501	Amy Foster	1981	SC	52-
38	-47	Waldo Wedell	1935	UCB	1-
39	-900	S. Edward Clewett	1981	SC	80-
40	-169	Adan Treganza	1959	SFSU	
41	-170	Adan Treganza	1959	SFSU	
42	-207	James Dotta/Ray Hullinger	1963	RMAC	
43	-992	S. Edward Clewett	1981	SC	82-

C-074784

Table 16, Prehistoric Archeological Sites Test Excavated . . . (continued)

Map No.	Site Number	Principal Investigator	Year Tested	Storage	Accession No.
44	-993	S. Edward Clewett	1981	SC	83-
45	-177	Keith Johnson	1970-71	CSUC	
46	-995*	S. Edward Clewett	1981	SC	84-
47	-286	James Dotta	Prior 1968		RMAC
48	-266	S. Edward Clewett	1979-80	SC	68-
49	-222	S. Edward Clewett	1967-79	SC	3-
50	-237	James Dotta	1964	RMAC	1982.79.1-.457
51	-290	Jerald Johnson	1982	CSUS	81-134
52	CA-TEH-748	Jerald Johnson Steven Dondero	1982	CSUS	81-136
53	-1264	Jerald Johnson Steven Dondero	1982	CSUS	81-145
54	-54	Jay von Wherloff	1954	UCB	1-
55	-1197	Jerald Johnson Judith Tordoff	1983	CSUS	81-142
56	-1196	Jerald Johnson Judith Tordoff	1983	CSUS	81-141
57	-1211	Jerald Johnson Judith Tordoff	1983	CSUS	81-143
58	-387	Jerald Johnson Judith Tordoff	1983	CSUS	81-137
59	-1232	Jerald Johnson Judith Tordoff	1983	CSUS	81-144
60	TEH-1979:5	Jerald Johnson Marianne Russo	1980-84	CSUS	81-120
61	CA-TEH-193	Martin Baumhoff	1956	UCB	1-156+
62	-58	Adan Treganza	1954, 58	UCB	1-
63	-1350	Brigham Arnold	1961	CSUS	81-146
64	-1	Martin Baumhoff	1952, 54	UCB	1-133+,1-155+
65	-290	Jerald Johnson James Johnston Gregory Greenway	1973-81	CSUS	81-45
66	-372	Jerald Johnson Sannie Kenton/Carol Lynam	1970	CSUS	81-6
67	-328	Jerald Johnson	1969-70	CSUS	81-3
68	-331	Patti Johnson	1971	CSUS	81-8
69	-269	Jerald Johnson	1969	CSUS	81-9
70	-835	S. Edward Clewett	1982-83	SC	69-
71	-300	Jerald Johnson Martin Baumhoff	1967	CSUS	81-30
72	-309	Jerald Johnson Martin Baumhoff	1967	CSUS	81-
73	-600	Jerald Johnson	1972-73	CSUS	81-40
74	-262	Robert Edwards	1967	UCD	
75	-261	Robert Edwards	1967	UCD	
76	-256	Robert Edwards	1967	UCD	
77	-250	Burnham	1965	CSUC	

Table 16, Prehistoric Archeological Sites Test Excavated . . . (continued)

Map No.	Site Number	Principal Investigator	Year Tested	Storage	Accession No.
78	CA-BUT-294	Makoto Kowta		CSUC	32
79	-288			CSUC	
80	-7	Makoto Kowta			
		Donald Miller	1970	CSUC	
81	CA-TEH-248	Thomas Durbin			
		Keith Johnson	1974		
82	CA-BUT-473			CSUC	
83	CA-TEH-10	Jerald Johnson			
		Steven Dondero	1983	CSUS	81-138
84	CA-BUT-12	Joseph Chartkoff	1967	CSUC	
85	CA-GLE-10	Adan Treganza	1960	SFSU	
86	-11	Adan Treganza	1960	SFSU	
87	-15	Adan Treganza	1960	SFSU	
88	CA-BUT-563			CSUC	
89	-1	Donald Miller	1964	CSUC	
90	CA-GLE-105	Keith Johnson		CSUC	
91	-19	Keith Johnson		CSUC	
92	-18	Keith Johnson		CSUC	
93	CA-BUT-233	Keith Johnson		CSUC	
94	CA-GLE-101	Keith Johnson		CSUC	
95	CA-SHA-1183	Christopher Raven	1983	INFOTEC	
96	-1169	Christopher Raven	1983	INFOTEC	
97	-1170	Christopher Raven	1983	INFOTEC	
98	-476	Christopher Raven	1983	INFOTEC	
99	-511	Christopher Raven	1983	INFOTEC	
100	-1175	Christopher Raven	1983	INFOTEC	
101	-1176	Christopher Raven	1983	INFOTEC	
102	CA-TRI-327	Alfred Farber			
		Neal Neuenschwander	1983		
103	-862	Trudy Vaughan	1983		
104	CA-TEH-961	Ann Peak	1980	CSUC	178-C
105	-962	Ann Peak	1980	CSUC	178-A
		Alfred Farber	1983	CSUC	178-C
105	-963	Alfred Farber	1983	CSUC	178-B
106	-255				
107	-254				
108	-257				
108	-258				

KEY:

*	= not excavated
UCB	= University of California Berkeley
UCD	= University of California Davis
CSUC	= California State University, Chico
CSUS	= California State University, Sacramento
RMAC	= Redding Museum and Art Center
SFSU	= San Francisco State University
SC	= Shasta College

TABLE 17

GENERALIZED NOMLAKI, WINTU, AND YANA ARCHEOLOGICAL "TRAIT MARKERS"
A.D. 500 to A.D. 1850
(Organized by Frequency in Wintu Sites)

Trait Marker	Nomlaki	Wintu	Yana
Manos	-	-	+
Metates	-	-	+
Andesite Arrow Shaft Straighteners	-	-	+
Pitted Boulder Petroglyphs	o	-	+
Rock House Rings	-	-	+
Flat Stone Disks	-	-	+
Numerous Seasonal Campsites (15 Meters or Less in Maximum Length)	-	-	+
Occupied Rockshelters	-	-	+
Puddled Mud House Floors	?	-	+
Possible Menstrual Hut Locations	-	-	+
Burials Always in the Midden	-	-	+
Short Stubby Tapered and Cylindrical Pestles	o	o	+
Charms of Rounded Pebbles	o	o	+
Expanding Stem Serrated Projectile Points	o	o	+
Chalcedony Artifacts	o	o	+
Basalt Projectile Points	-	o	+
Main Villages Seldom Over 40 Meters in Maximum Length	-	o	+
Numerous Summer Villages	+	+	+
Burned Human Bone	+	o	+
Hopper Mortars of Local Material	+	+	+
Bedrock Mortars	+	-	o
Long Tapered and Cylindrical Pestles	+	+	o
Killed Pestles with Burials	+	+	o
Sandstone and Scoria Shaft Smoothers	-	+	o
Charms Made From Fossils	+	+	-
Notched-Pebble Net Weights	o	?	+
Stone Pendants	+	+	o
Split Elongated Cobble Tools	-	+	-
Tapered Stem Serrated Projectile Points	+	+	o
Redding Sub-Type Desert Sidenotched Projectile Points	-	+	o
General Sub-Type Desert Sidenotched Projectile Points	+	+	o
50% small side-notched/cornernotched/triangular points not of Desert Sidenotched type	0	-	+
Chert Artifacts	+	+	o
Pine Nut Beads	+	+	o
Conical Bark Houses	o	+	o
Village Often Over 100 Meters Long	+	+	o
Large Structures for Ceremonial Purposes	+	+	o
House Pits Over 30 cm Deep	+	+	o
Number of House Pits More Than 10	o	+	o
Stone Lined Rectangular Storage Pits	-	+	o
Fire Hearths with Stone Slab Lining	o	+	o

Table 17, Nomlaki, Wintu, and Yana Archeological . . . (continued)

Trait Marker	Nomlaki	Wintu	Yana
Pendants of Freshwater Snail Shell	-	+	o
Incised Designs on Bone Artifacts	o	+	o
Fish Bone Frequent in Sites	o	+	o
Bird Bone in Sites	o	+	o
Burned Seeds and Nuts Frequent in Sites	?	+	o
65% to over 95% of Projectile Points are of Obsidian	+	+	-

KEY:
+ = Well Represented Trait
o = Infrequent Trait
- = Not Currently Known in the Archeological Record
? = Not Certain if Present

Based on:
J. Johnson 1983a, 1983b, 1983c, 1984
Sundahl 1982a, 1982b
Treganza 1954, 1963
Treganza and Heicksen 1960, 1969
Johnson and Theodoratus 1984

CHAPTER 6

ETHNOGRAPHIC FINDINGS: 1982

Ethnographic Background

The early inhabitants of the area of the proposed Tehama Lake project were speakers of languages belonging to the Wintuan language family. There is some disagreement, however, about the political designation of the people residing in this region. While the project area falls into what some observers, including early ethnographers, have defined as the traditional territory of the Central Wintun (Nomlaki), others have placed it within Wintu territory. There is also the possibility that the area was used by Native Americans as a marginal resource area: a region occupied only on a seasonal basis, perhaps by segments of both Wintu and Nomlaki groups (see Chapter 5 for a discussion of this interpretation of ethnographic and archeological data). Apparently the boundary line between these peoples falls somewhere in the vicinity of the South Fork of Cottonwood Creek or Red Bank Creek, and the Tehama Lake project area is probably an zone of contact between these groups during late prehistoric times.

The first efforts to categorize Indian inhabitants on both sides of Cottonwood Creek were made in 1851 and 1852 by Major P. B. Reading and H. B. Brown, who based much of his mapping on Reading's reports. They believed that Red Bluff Creek (Red Bank Creek) formed the dividing line between the Central Wintun (Nomlaki) people and the Wintu (Merriam 1966:55). This division would designate those then dwelling along the banks of the South Fork of the Cottonwood as members of the Wintu group. Later (1877) Powers indicated the Wintu occupied the main branch of Cottonwood Creek, while the northernmost Nomlaki lived on Elder Creek (Powers 1877:230). He mentions the Num-mok (Western People) in between the Wintu and Nomlaki, but does not assign them to any particular group. A. L. Kroeber, basing his opinion at least partly on his field investigations, identified Cottonwood Creek as the northern boundary of the Central Wintun group:

> Cottonwood Creek is the boundary usually mentioned toward the central Wintun, and in default of any more precise knowledge has been so entered on the map. But the true line very likely followed the minor watershed on one or the other flank of the stream [Kroeber 1925:354].

In a later publication, Kroeber supplied a map (which is ambiguous and confusing due to its misrepresentation of the Middle Fork of the Cottonwood) with the northern boundary of the Central Wintun drawn to the south of his designated Middle Fork of Cottonwood Creek and substantially to the south of what appears to be the true Middle Fork (Figure 1). (His placement of the Middle Fork seems roughly to correspond with the location of the South Fork of the Cottonwood and Dry Creek.) The village of Chuidau is located in the Central Wintun area to the south of this boundary "on the south fork of Cottonwood Creek" (Kroeber 1932:266). A question

mark appears beside the name Chuidau on the map, with no explanation or additional comments. According to this 1932 map, the boundary between Wintu and Central Wintun territory appears to have been within the Tehama project area (Kroeber 1932:Map).

Merriam conducted fieldwork in the Wintu-Central Wintun area from 1903 to the 1930s and, in apparent agreement with Reading and Brown, concluded that Red Bank Creek marked the northernmost extension of Central Wintun territory (Merriam 1966, 1967). However, he did not include any villages in his list of Wintu and Central Wintun settlements in that area between Cottonwood Creek and Red Bank Creek. Merriam's tribal area map appears in a 1967 publication (see Map 14 [Chapter 5] and Figure 2, this chapter). Some supporting data for Merriam's boundary delineation appear in his unpublished notes. One of his Wintu consultants indicated that the two groups--the Poo-e-muk along the South Fork of Cottonwood Creek to the valley north of Red Bluff, and Poo-e-bos of the Redding and Anderson area--spoke the same language (Merriam n.d.).

Goldschmidt, in his studies of the Nomlaki, placed their northern boundary on Cottonwood Creek, but provides little discussion of his reasons for doing so (1951:1978). Although his map depicts Nomlaki territory as extending to Cottonwood Creek, he does not provide the names of any dialect groups north of the Red Bank Creek drainage area and west of Hooker Creek (Figure 3). He includes the village mentioned by Kroeber (Chuidau) under the spelling Tcuidau, but offers no further information (Goldschmidt 1951:315). Due to a lack of additional information or explanations, one must conclude that Goldschmidt essentially based his Nomlaki territorial boundaries on Kroeber's described Central Wintun boundaries (Kroeber 1925:354), not on those of Kroeber's later map (1932).

Judging from the general lack of data and the conflicting nature of that which exists, it seems that the Tehama project area falls within a boundary zone. None of the ethnographers mentions consultants who were descendants of early inhabitants of this area. The only clue in the literature to any early habitation site is Kroeber's mention of the village of Chuidau (which appears to be within or near the border of the project area), and even the origin of this information is uncertain. Questioning Nomlaki and Wintu individuals from nearby areas and from Round Valley produced no further leads regarding the early inhabitants of the project area or their descendants. One Nomlaki, after interviewing several elders and gaining no information, characterized the Dry Creek/South Fork of the Cottonwood drainage as appearing to be a "dead area" (TCR Field Data).

Although it may not be clear whether the Indian inhabitants of the Tehama project area were Wintu, Nomlaki, or members of both groups, it does not present an insurmountable problem in terms of providing a generalized cultural description, since the two groups shared many cultural similarities. A description of Wintu culture has been provided already for the Dutch Gulch project report, and this description applies in many cases to the Tehama area as well.

The most recent detailed study that might be said to describe the cultural past of the project area is that of Goldschmidt (1978), based on his 1951 monograph. The study area falls within the Hill Nomlaki subdivision of Nomlaki (Goldschmidt

1978:341). His cultural description of Nomlaki is applicable primarily to the Hill Nomlaki subdivision, since his consultants were Hill Nomlaki. Goldschmidt's consultants were mainly from the area near Paskenta, thus it may be that the cultural information is for an even more specific area. It is unfortunate that there is no project area-specific information included in the Nomlaki monograph as there was for the Bald Hills people of the Dutch Gulch area in DuBois' description of the Wintu (1935). Because the Tehama project area is located between the Bald Hills and the Nomlaki territories described by Goldschmidt, it would be likely that the culture of the Indians of this area would be intermediate in many of its aspects, sharing many similarities with Bald Hills culture. Indeed, a comparison of known Bald Hills cultural traits (some of which vary from the more northern Wintu) with those of the Nomlaki shows striking similarities in subsistence patterns, material culture, and religious beliefs.

In addition to the standard central Californian dependence on acorns as a dietary staple, both groups gathered--and used extensively--seeds, such as those of the sunflower. These were used as an item of trade. Also, both groups used nets to trap rabbits and quail, and fabricated woven rabbit-skin blankets. Both the Nomlaki and Wintu gathered such materials as willow branches, grapevines, pine roots, and redbud for their basketry. Interestingly, the Nomlaki primarily used the coil method in their baskets, and the Bald Hills people also used the coil method more extensively than did people of other Wintu areas.

Both groups lived in small villages of 20 or 25 to 200 individuals with a headman in each village, or in the case of smaller villages clustered together, one headman for several villages. In both cases, these villages were not inhabited year round, but only during the fall and winter months, with the inhabitants journeying to other areas at the onset of spring. Instead of making several temporary camps within a three-or four-day journey from their permanent camp, as did the Wintu, the Nomlaki trekked to the mountains of the Coast Range for the summer. Goldschmidt gives few further details of this transhumance, so whether or not the Nomlaki had more than one temporary mountain camp each season is not known (Goldschmidt 1978:347).

Both the Nomlaki and Wintu buried their dead in cemetery areas very close to their permanent camps. The Nomlaki graveyards were at a slightly greater distance of 300 to 400 yards from the villages, and their graves were a foot shallower, being excavated to a depth of approximately three feet (Goldschmidt 1951:379). The two groups also possessed within their territories numerous topographic features, including many particular springs or bodies of water, which they believed to be imbued with spiritual qualities.

The main differences between the two groups seem to occur in the area of social organization. The Nomlaki appear to have been more status differentiated, due to the existence of the Huta initiation. The individuals taking part in these secret Huta rites obtained the benefit of certain specialized occupations which enabled them to accrue more wealth--and therefore status--than uninitiated members of Nomlaki society. Although Bald Hills society did include special craftspersons, they were not related to any kind of secret society membership, and there was no obvious social stratification or preoccupation with wealth among the Bald Hills people.

At present, both the Nomlaki and Wintu have surviving populations with members who display considerable knowledge of, and concern for, the preservation of their cultural resources. However, no individuals from either group have been found to have specific knowledge of the population or cultural traditions of the early inhabitants of the Tehama project area. Unless knowledgeable descendants of the people from this area are located or new historical materials are brought to light, or archaeological investigations yield new data, a more complete and accurate description of the ancient residents of the Tehama project area is not possible.

Ethnohistory

There were without question Indian people inhabiting portions of the project area prior to the 1850s. Delving into the various historic records of the area provides some clues to their fate, but does not answer adequately the question of exactly who these people were or why they have no known surviving members or descendants.

In 1828, Jedediah Smith traveled between the North Fork of Dibble Creek and the South Fork of Cottonwood Creek, probably passing through the Tehama project area somewhere in the vicinity of T28N/R5W. During this portion of his journey, Smith recorded meeting "some Indians" who did not appear to be hostile, one of whom had "wampum and beads." Indians who had encamped near Smith on the South Fork of the Cottonwood traveled in his company (Quint 1960:17).

After a historical gap of more than 30 years, the next specific mention of Indians in the vicinity of the project area occurs in the discussion of the 1860 Eveland farmstead site, located in T28N/R5W. Elias Eveland was married to Lucy Baker, an Indian, and their eldest son was born in 1861, placing the Eveland couple in the area in the early 1860s (Hitchcock 1982:93). In the 1860 census, Cottonwood township, there was also an Indian girl named Lucy, included in the W. McKinsley household as a cook (U.S. Bureau of the Census 1860a). The location of the McKinsley residence is not known.

Although there are numerous reports in the Tehama County newspapers of Indian problems beginning in 1857, most of the reported depredations occurred on the east side of the Sacramento River, centering in the Antelope Mills/Antelope Creek area. Mention of any Indian activity to the west of the Sacramento River is rare. An 1866 robbery by Indians on Red Bank Creek (Red Bluff Independent, September 5, 1866:2/1) is an isolated example of Indian problems on the western side of the river, near the project area. So little mention of Indians in western Tehama County suggests two possibilities: either they had already undergone such a drastic population depletion through death and relocation that they caused little or no notice; or they enjoyed a somewhat peaceful coexistence with the settlers. There are indications, in the 1870s and 1890s, of a substantial Indian population south of the Middle Fork of Cottonwood Creek participating in Wintu/Nomlaki get-togethers near Cottonwood and in the Green Gate Ranch area (Hitchcock 1982:261; McNamar 1952:113, 114; Powers 1877:231; TCR Field Data). However, whether or not the homes of the participants in these gatherings were in or near the study area is not known, and is not likely to be discovered.

C-074792

There are no reports of large-scale (or small-scale) massacres on the western side of Tehama County (although a number of Indians on the western banks of the Sacramento River were affected by the massacre of 1864, when settlers killed over 500 Indians in retribution for the Indian murder of two White women in Shasta County). Likewise, there is no mention of epidemics claiming area natives, except the 1833 malaria epidemic which was rampant along the Sacramento River, and which possibly affected the Indian groups farther to the west to a more limited extent. The Indian removals to reservations (the 1854-1856 confinement to the Nome Lackee Reservation and the 1863 march to Round Valley) may have affected the Tehama study area Indian population, either directly or indirectly. Detailed reports of which Indian populations were confined to these reservations have not been discovered. There are indications that the Indian groups removed to the Nome Lackee reservation were from more diverse areas than usually portrayed (Hays Scrapbooks n.d.). Certainly the Indians in the vicinity of the South Fork must have lost some of their members to enforced reservation occupancy, at least temporarily. The Tehama Indian population may have fled their customary areas of residence during the 1850s and 1860s to escape confinement or death, as did the Shasta County Indians in the face of mass Indian exterminations in 1864. The Shasta Courier, September 17, 1864, noted that the Indians in some areas of the county were so alarmed by the bloody turn of events that they were "fleeing to the mountains for safety" (as quoted by Hunt 1960:44). The "mountains" (or less populated areas) would have been likely alternatives for the Tehama County Indians seeking new settlement locations. Less accessible locales within the project area may even have provided refuge for groups of Indians seeking safer quarters, although no documentation has been unearthed to support such a possibility. Discovery of early historic period "refuge" sites in traditionally undesirable areas may shed light on the possibility of Indian flight to remote areas to avoid persecution.

There are indications in the census records that there was a drastic reduction of the Indian population between 1860 and 1870 in all of Tehama County. In the Cottonwood township of the 1860 census, there were 33 Indians and four individuals classified as "one-half Indian." In the 1870 census, there were only two people classified as Indians within the same township. The 1864 massacre could explain the near disappearance of the Indian population in the eastern portion of the county, but according to accounts of the time the Indians to the west should not have been so dramatically affected. Other possible explanations for an almost total absence of Indians in Tehama County in the census reports of 1870 are: 1) a very large number of Indians from Tehama County were involved in the 1863 and subsequent enforced removals to Round Valley, and still had not returned by 1870; 2) the census takers bypassed most of the Indian population during their poll-taking; or 3) a combination of the above. Tehama County newspapers of the 1870s seldom mention local Indians in their reporting of county news, further indication of either a very small Indian population or a population which maintained a very low profile.

By 1880, 14 Indians were listed on the U.S. census for the Cottonwood township. Eleven of these Indians were included within the household of a White family named Pate. The census taker noted in the margin by these 11 Indian entries "Indians work mostly on farm sometimes hunt" (U.S. Bureau of the Census 1880a). The Pate ranch is located on an 1887 map in sections 20 and 29 of T27N/R6W, approximately four miles southwest of the Tehama study area.

Another interesting case to follow through the various censuses is that of the previously mentioned Eveland family. This family does not appear on the 1870 census, although the GLO surveyor places them in the area in the 1860s. In the 1880 census entry, Lucy Eveland's ethnicity is difficult to distinguish, and the Eveland children are designated as one-half Black. By 1900, the U.S. census shows no Indians residing within the Cottonwood township (although three of the Eveland children remained in the township and this time were designated as White).

In contrast to the 1900 U.S. census, the 1905 Kelsey census lists two Indians and 32 Indians of mixed ancestry in the Farquhar district of Tehama County (which is included within the Cottonwood township of the U.S. census rolls) (Kelsey 1971). At least one of these individuals of mixed Indian ancestry, Frank Holbert, owned land in the project area (T28N/R5W, portions of sec. 7 and 8, according to 1878 and 1887 Tehama County maps [Shackelford 1887; Shackelford and Nugent 1878]), but Mr. Holbert is not included on the later U.S. census lists (U.S. Bureau of the Census 1870, 1880a, 1900). Also, three of the Eveland family members are included in this census as Indian "mixed bloods." This lack of agreement among these sources would suggest not only that there were some inaccuracies in the record keeping of the time, but also that much of the Indian population that existed in Tehama County was not included in the official records under the identity of "Indians," or possibly not at all. Probably the most benefit one can obtain from these records is to compare them and realize that none of them adequately portrays the size and location of the Tehama County or project area Indian population. Apparently, from 1870 until 1905, Tehama County had an "invisible" Indian population, the approximate number of which is not known and probably cannot be determined at this late date.

Since copies of the 1910 U.S. census had not been released at the time of this research, the next source of population records for the area is the BIA 1928 roll. The roll lists, in alphabetical order, all those individuals claiming at least one-fourth California Indian ancestry. Using the names present on the 1905 Kelsey census from the Farquhar District, several notable discoveries were made. Still living in the Red Bluff area were two of the Eveland sons and seven members of the succeeding generation as well, along with Frank Holbert and sons and two other individuals listed on the 1905 census. Three other former Farquhar residents appeared on the 1928 list, with addresses in Lookout, Arbuckle, and Hoopa Valley Agency.

By the 1930s, when DuBois and Goldschmidt were involved in their fieldwork among the Wintu and Nomlaki, the area in and near the Tehama project was not noted by either ethnographer as a location of a surviving Indian population. According to Goldschmidt, the Nomlaki population at that time was "divided between the 'rancherias' of Grindstone . . . , Paskenta, and the reservation in Round Valley" (Goldschmidt 1951:313).

At this point of investigation, the faint trail left by Indian inhabitants in the general area of the proposed Tehama project seems to vanish. It is not surprising, then, that almost 50 years later a native population which has a direct affiliation with this area has not been found. The Bald Hills Wintu (the closest Wintu group) do not claim a specific affiliation with the area (TCR Field Data).

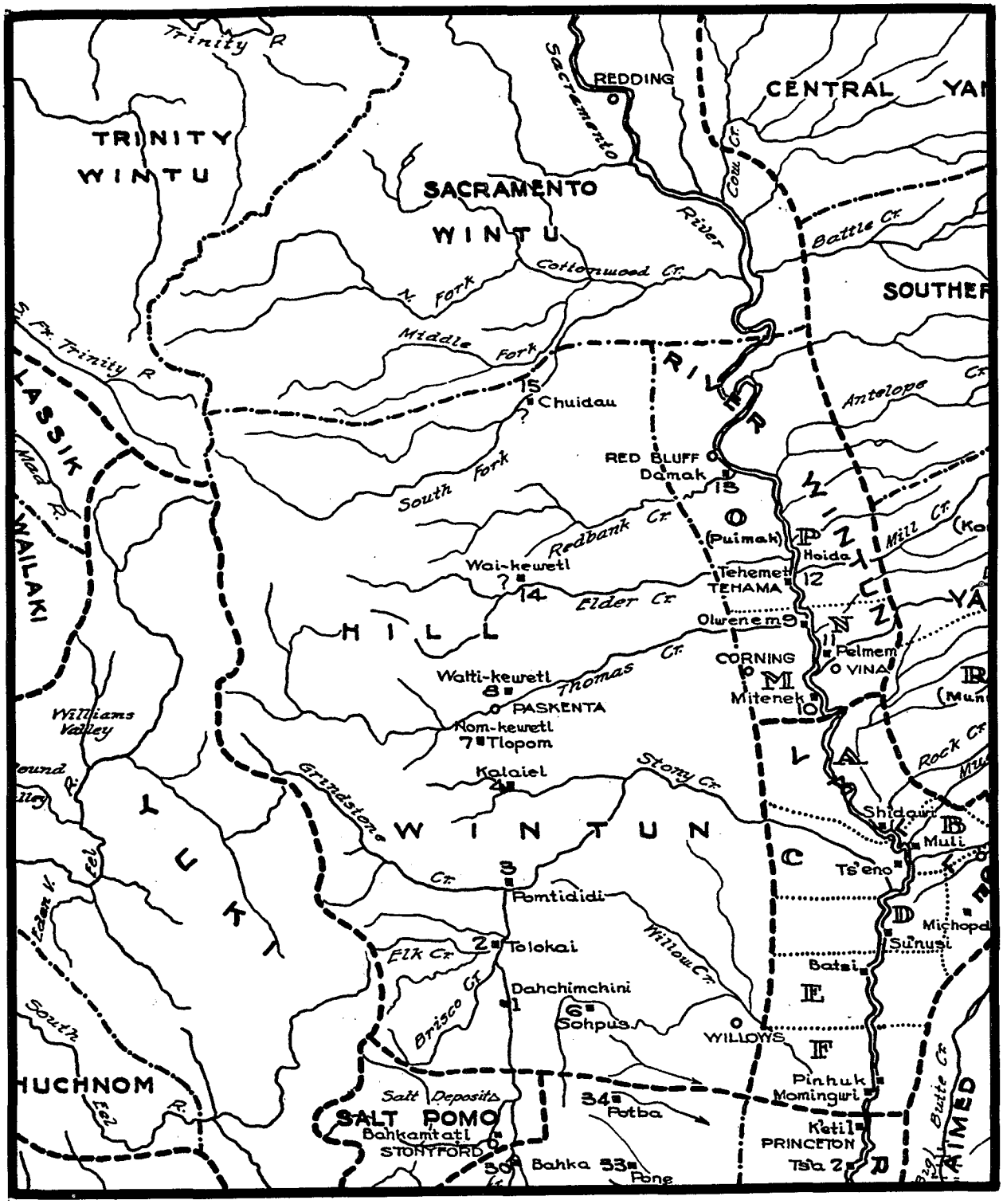


FIGURE 1
ETHNOGRAPHIC TERRITORIES
(After Kroeber 1932:Map [no scale given])

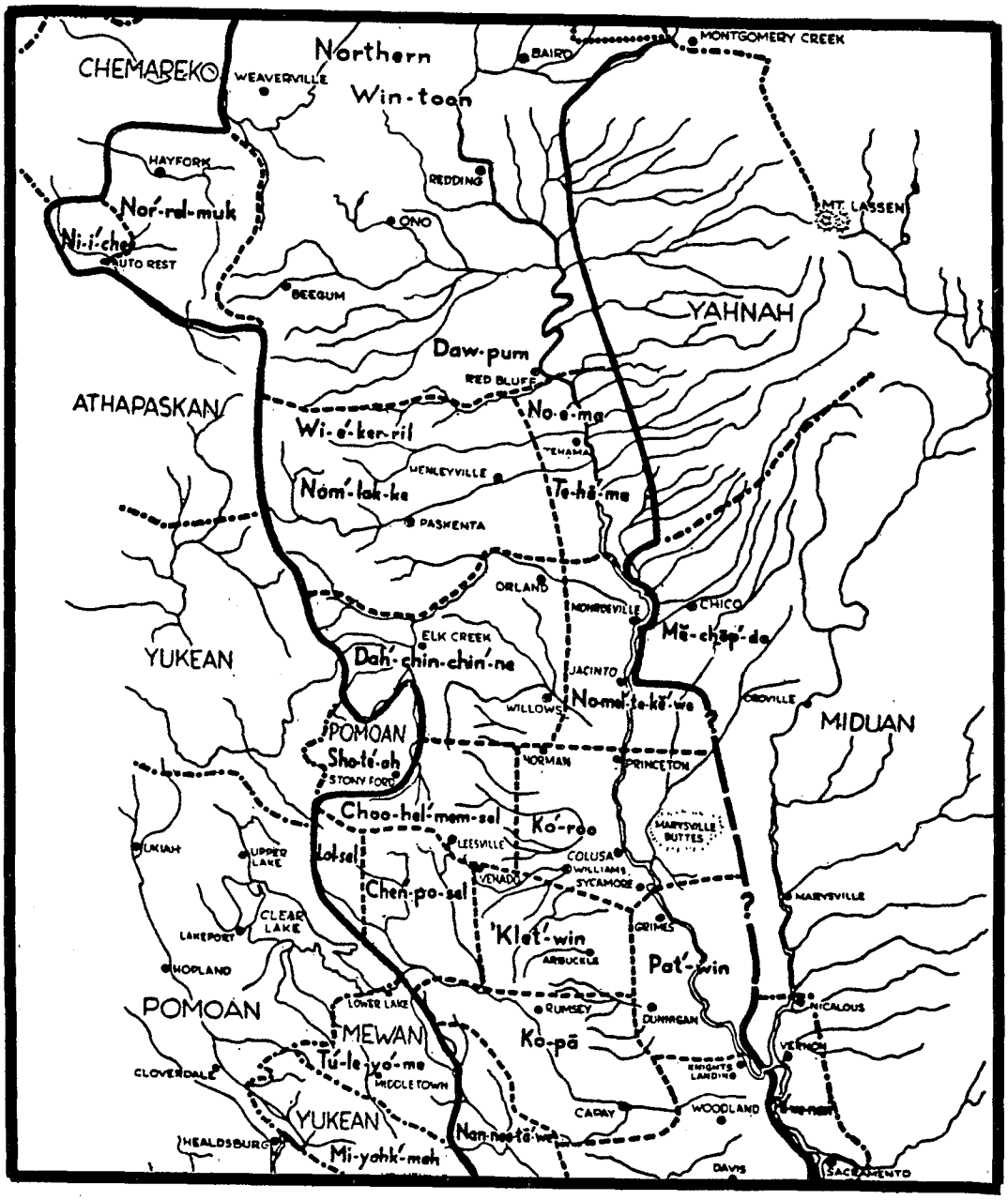


FIGURE 2
ETHNOGRAPHIC TERRITORIES
(After Merriam 1967b:260, Map 5 [no scale given])

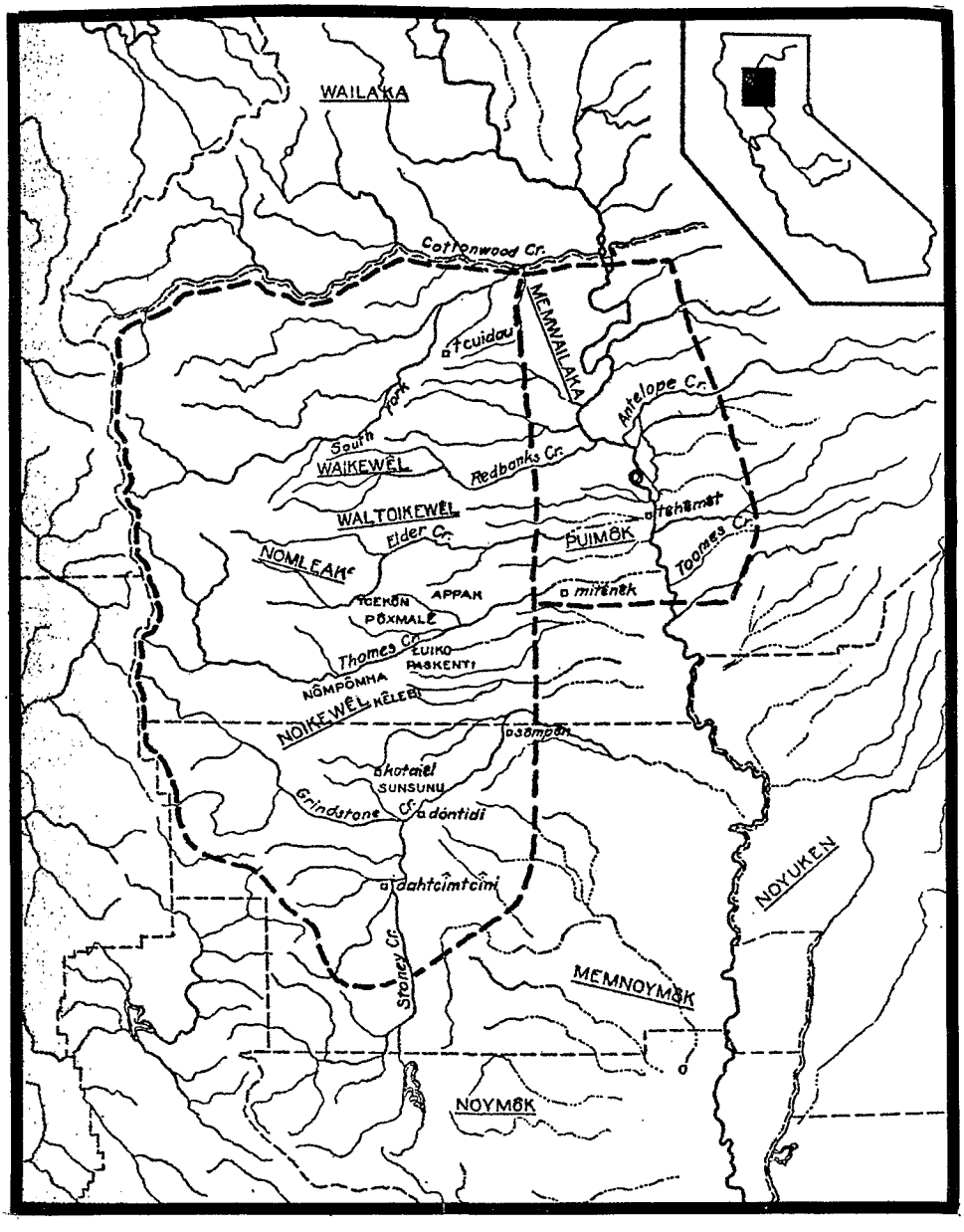


FIGURE 3
ETHNOGRAPHIC TERRITORIES
(After Goldschmidt 1951:315 [no scale given])

C-074797

CHAPTER 7

HISTORICAL FINDINGS 1982-1983

Introduction

The purpose of this chapter is to provide a narrative history of the Tehama project area in order to establish a context for identifying and assessing the significance of the area's historical resources. Only within such a context is it possible to determine if, and how, specific resources may help in understanding the broad trends of American history, and thus to determine whether or not they should be preserved for the benefit of the American people. There is a noticeable emphasis on the area's history prior to 1900, since resources associated with the nineteenth century are most likely to be "significant" as defined by law.

Exploration and Settlement, 1820-1848

Hispanic Influence

Louis Pickett, heading south into northern California from Hudson's Bay Company headquarters in 1820, was probably the first White person to enter the region (Hitchcock 1982:154). Spanish and Mexican exploration and settlement of California had concentrated along the coastal areas, from San Francisco south. It was not until the second decade of the nineteenth century that threats of foreign encroachment, especially by the Russians, triggered several Hispanic expeditions into northern California. In 1821, in the face of English and American infiltration into northern California, Luis Arguello set out with 55 soldiers to reclaim Mexican territory. Following the Sacramento River north, the party probably turned west at Cottonwood Creek, following the creek to its source before turning south (Beck and Haase 1974:18; Giles 1949:12).

Although Arguello and his followers may have been the first group of Whites actually to set foot in the project area, Hispanic influence had little lasting effect in the region. Among the infrequent remnants of this fleeting era were a Mexican ring and coin found at an Indian site near Redding (Hunt 1967:17). There is also evidence of Spanish words being used by some Indians in the area. For example, in 1850, just north of the Tehama project area in the vicinity of Cottonwood Creek, a group of prospectors were able to communicate with Indians in Spanish (Frank and Chappell 1881:11). Major Reading, whose adobe was located within 50 miles of the study area, had for his children an Indian nurse who called the baby "Nina"—a Spanish term of endearment (Hunt 1967:18). It is likely that Indians fleeing the southern missions brought with them some Mexican terms and artifacts as a result of their contact with White men to the south.

Trappers, 1820-1844

It is probable, though not provable, that English trappers from the Hudson's Bay Company worked the project area in the 1820s. As H. Bancroft said:

> It is not improbable that Hudson's Bay Company men may have [crossed the northern frontier] from the Willamette Valley on one or more occasions, although there is no more definite record than the rumor of 1820-1 that foreign hunters were present in the North and the newspaper report of McKay's presence in Siskiyou in 1825. . . . After 1826 an army of hunters increasing from hundreds to thousands, frequented the fur-producing streams of the interior, and even the valleys of California, flitting hither and thither, individuals and parties large and small according to the disposition of the natives, wandering without other motive than the hope of more abundant game, well acquainted with the country, as is the wont of trappers, but making no maps and keeping no diaries [as cited in Hunt 1967:18].

The first written record on the area's history was left by Jedediah Smith, who had evidence of prior trappers in the vicinity. In 1828, camped on the North Fork of Dibble Creek, he wrote:

> One of the Indians which came to me had some wampum and beads. They were procured as I supposed from some trapping party of Hudson's Bay Company which came in that direction from their establishment on the Columbia [as cited in Quint 1960:17].

It was probably April of 1828 when Smith's party passed through the project area on its fateful journey through the north central valley, on the way to Oregon. He came to the Sacramento River near Red Bluff on April 10, 1828, where he stopped, with his entourage of 18 men and 300 horses and mules, to construct a skin canoe for floating supplies across the river. Smith was looking for a pass through the Coast Range, and decided to travel up the North Fork of Dibble Creek, to the South Fork of Cottonwood Creek, to the Middle Fork of Cottonwood Creek, to Beegum Creek (Hunt 1967:18-19). He described the eventful trek along the Middle Fork of the Cottonwood:

> WNW 12 miles. At 1-1/2 mile from camp crossed a Creek 15 yards wide running NE. The country very rough and hilly, but fortunately a ridge or divide ran nearly in the direction in which I wished to travel on the top of which I enabled to move on without much difficulty until nearly night when I turned a little NE and went down into a deep ravine to encamp on the bank of a rapid stream 20 yards wide running SE. I drove the horses under a steep bank next to the Creek that I might have a convenient place to catch them. While catching them I observed an arrow in the neck of a horse and immediately called to the men to tie the horses they had in their hands and spring to their Guns. This was quickly done and several men mounted their horses, rode quickly to a point where 10 or 12 Indians were throwing their arrows into camp. They ran off and were fired at and two fell but afterwards crawled off. I got a shot at one soon after but he went off leaving much blood behind. The Indians were shouting about

until night but did not come again within gun shot. In the affray they wounded 9 horses and two mules. Some badly, some slightly and in all probability paid for the damage they had done me by the sacrifice of two or three of their lives. In taking out the arrows some of the points were left in. The Creek on which we had encamped had some appearance of Beaver.

> 16th April (Near Beegum Creek, Braden Ranch)
>
> West 12 miles. On account of the roughness of the country I was obliged to turn West. The traveling was exceedingly bad through a country timbered with some Oak and abundance of Bastard Cedar [as cited in Quint 1960:17].

Smith's party continued up the coast of northern California to the Umpua River, where, in another battle with Indians, all of the men were killed except for Smith and three others (Hunt 1967:19). The survivors somehow made it to Fort Vancouver, where they must have regaled their peers with tales of the lucrative beaver country to the south. At any rate, it would seem that increasing numbers of trappers invaded the project area; some of Smith's colleagues even followed his footsteps. In 1829, Alexander McLeod led a group into California "by Smith's route" (Hunt 1967:19). Similarly, Peter Skene Ogden trapped the central valley in the following year, and according to one source, "passed over to the coast and up to Vancouver by the route Smith had formerly traveled" (as cited in Hunt 1967:19).

In the 1830s, the Tehama County area witnessed too many fur trapping expeditions to mention here. Trappers, normally traveling in small parties along with their women and children, would stay in the area for one season. Erving Young led one unusual party through in 1837, driving 700 head of cattle (Peterson 1965:13). Although it is not certain which of the "mountain men" actually trapped the streams of the study area, it is known that, in 1850, prospectors reported "signs of white men in the neighborhood of the Bee Gum Fork, which had been made years before, probably by men who had been trapping on the Bee Gum Fork, and from there over on to Trinity River" (Frank and Chappell 1881:15).

The trappers were important to the area's history not only because they were the first White men to blaze trails into the area, but more importantly because of the depopulation and demoralization of the native people which they left in their wake. Trappers introduced the diseases which so ravaged Indian settlements that, when the gold miners arrived a few decades later, they found easy access to the diggings, due to the weakened condition of the native people. John Work, in his diary of 1832-1833, describes the decimation of villages and the miserable condition of the diasease-ridden inhabitants (Hunt 1967:20-30). By the time the Euro-Americans arrived in great numbers in the late 1840s, the native population was frightened, angry, and helplessly debilitated.

American Settlers, 1844-1846

A strip of land lying along the west side of the Sacramento River, north from Cottonwood Creek, comprised the 26,633-acre grant from the Mexican Government

to P. B. Reading in 1844. Another American, William P. Ide, received a similar grant in the vicinity of Red Bluff. Although these grants did not include project area land, it is likely that livestock, particularly cattle and horses, strayed from grant lands into the study area. Reading and Ide ran livestock, cultivated crops, and exploited Indian labor--all practices which affected the cultural geography of the area and helped to shape future relations between Anglos and Indians.

When John C. Fremont arrived in 1846 to survey northern California for the U.S. Government, he found the American residents fearful that the Mexican governor, General Castro, was trying to drive them out. Fremont, receiving word that one thousand Indians were gathering at Reading's ranch to confront the Americans, led his soldiers in an offensive attack which left 175 Indians dead (Walsh 1962:7). This was only one of a series of Fremont's forays leading up to the Bear Flag Revolt, which in turn led to the eventual transfer of California's leadership from Mexico to the U.S. The history of the project area, however, was only indirectly effected by Fremont's presence--though it is said that he named "Cottonwood Creek" for the abundance of these trees that he found along its banks (Steger 1966:16).

The Gold Rush Era, 1848-1855

Only the most adventurous and optimistic Americans made their way to California prior to 1848; California offered little to entice the average thrifty, hard working farmer who comprised the majority of the U.S. population. Then, on January 24, 1848, James Marshall, working at a remote lumber site in the Sierra foothills, chanced to find several pieces of gold. The effect of the discovery on those who learned of it was electrifying. However, news traveled slowly in those days. It was late spring before the Hispanic settlers of California got the word. By the time news reached the eastern United States, winter had fallen. Through the winter and spring of 1849, tens of thousands of men dreamed and schemed of going to California to make a quick fortune in the mines. With the onset of good weather, the rush was on. Most of the adventurers had little knowledge of mining and absolutely no perception of the relatively limited amount of precious metal to be gleaned. Would-be miners literally stumbled over each other at known mining sites; latecomers (and most were) had to move on to find their own diggings. At some time or another, and probably more than once during this frenzied era, one or several hopefuls must have traveled through the project area scanning streams, despite the fact that gold here was very scarce. These men left little mark, either culturally, historically, or physically; yet their appearance should not be overlooked. Many who passed through in the 1850s while looking for gold would return in the 1860s to farm.

In contrast to the southern (project area) branches of the Cottonwood Creek, the northern branches and tributaries of the Cottonwood did bear gold, and it was in conjunction with this mining zone that the first permanent settlers appeared in the study area. The Cottonwood mining district was prospected in February of 1850. After searching the various tributaries north of Middle Fork Cottonwood Creek, the groups found what they were looking for at Arbuckle Gulch, some ten miles northwest of the project area. According to interviews with participants, the area was soon overrun by prospectors, with contenders almost coming to blows to get the best

locations (Frank and Chappell 1881:16). Piety Hills (Igo), Watson Gulch, Bald Hills, Gas Point, and Roaring River were among the most lucrative camps. An 1854 article in the Shasta Courier described the area as follows:

> We are all informed that all the portion of the valley in the vicinity of Cottonwood is literally covered with tents, wagons and cattle belonging to the immigrants. . . . We are informed that the number (of immigrants) coming over the Nobel route this year is quite large. We are also happy to state that the proportion of females is quite large, thereby giving much comfort to the forlorn and long sorrowing bachelors of the Upper Sacramento [as cited in Peterson 1974:8].

Early Settlers

When the General Land Office surveyor passed through the Tehama project area in 1876, he found numerous settlers. For example, in what is now the Farquhar vicinity, the surveyor found E. (Elias?) Eveland's farm in Section 7, T28N/R5W, MDM (Tracy 1854). Just northeast of Evelands, at the junction of South Fork Cottonwood Creek and Dry Fork, was D. Sasman's field. Downstream a mile were Farquhar's fields, followed by an abandoned house, and the Owens' and Baileys' fields (T29N/R5W).

According to the original survey, Dry Creek was also heavily settled. Next to E. Eveland's farm was that of Thomas Ward. Two miles upstream was the Howards' house, yard and farm (T28S/R6W). Upstream along South Fork Cottonwood Creek were Reuben Cole's farm; H. Dyer's house, yard and field; Sandford's and Shiverley's field and barn, and one of the few known mining claims. B. W. Barber also farmed in this extreme southern portion of the project area.

While many of these settlers may have arrived in the 1860s rather than in the 1850s, the homestead list of 1852, under the California State Possessory Act of April 10, 1852, also suggests earlier residents. James and Andrew Hunter, for whom the Hunter district just south of the project area is named, filed a claim on October 23, 1851. Similarly, David Huntoon, another known settler nearby, filed for land along Cottonwood Creek in 1853. Burton G. Hooker, L. Gall, Matthew Mayfield, and R. W. Morgan filed a cluster of claims. David Barnhardt and Joseph Pardon filed in 1855 along Dibble Creek (Lengenfelter Collection n.d.:1853-1855 Homesteads).

Comparatively little is known about these first farmers, probably because most of them lived only briefly in the area. According to census manuscripts, Elias Eveland was born either in Illinois or Ohio in 1835. He must have married Lucy Baker, an Indian, by 1860, for their first child was born in 1861. Elias probably emigrated to the area with his brother George, who (according to the 1870 census) farmed a few miles away (Hitchcock 1982:93). Elias Eveland is listed as a farmer in the 1884 county directory (McKenney 1884:68). CA-TEH-1292 or -1293 may be modifications of his early homesite.

George C. Farquhar similarly left a scant historical record, though his name clings to schools, roads, and similar landmarks. According to local historian Myrtle McNamar, Farquhar was a colonel who took up several tracts of land along the creek basin prior to 1856, and sold out to others following the arrival of the railroad (McNamar 1952:88). Historian Ruth Hitchcock provides a bit more information. Born in 1812 in Tennessee, Farquhar's name appears in the Great Register of 1867, Tehama County land deeds, and in a list of jurors compiled in 1864 (Hitchcock 1982:draft).

Among the early project area landowners was the giant cattle firm of Miller and Lux, which held vast tracts of land the whole length of California. The company purchased some 25,000 acres between Rosewood and Beegum in 1870. There the company ran 1000 head of hogs as well as cattle. The land was later subdivided (Hitchcock 1982:410; McNamar 1952:152).

Of all the pre-1870 settlers, the most is known about Wilhelm Ludwig, who established the Green Gate ranch just northeast of the study zone. His biography contains many insights into the life and times of the area prior to 1870, and thus is chronicled here in some detail. Like many of the area's most prosperous settlers, Wilhelm Ludwig was not American by birth. Born in Germany on October 31, 1828, he emigrated to the United States at the age of 18. Working first as a bridge builder in Lewistown, Pennsylvania, Wilhelm soon moved deeper into the frontier, settling at Belleville, Illinois, to work as a cabinet maker (Hitchcock 1968:1). Wilhelmina Becher, his future wife, was a childhood sweetheart. She imigrated to St. Louis, Missouri, in 1850 with her father; an uncle had previously settled in the city. On April 13, 1853, Wilhelmina and Wilhelm were married in St. Louis, and three days later the newlyweds departed for California (Hitchcock 1968:1).

With their wagon train of 30, the Ludwigs experienced a quite typical overland journey. Although most afraid of Indians, the pioneers soon found their greatest enemy to be cholera. Upon reaching the Black Rock desert area, the party made the decision to follow the Noble Trail into California; and so, as the newspaper account cited above testified, it became one of the numerous parties pouring into the Shasta-Cottonwood area that year. According to one account, 2136 men, 716 women, and 376 children came to California via the Noble Trail in 1854 alone (Shasta Courier, August 13, 1853, as cited in Hitchcock 1968:6). Ludwig, a carpenter by trade, found ready employment in rebuilding Shasta City, which had recently been destroyed by fire (Hitchcock 1968:7). The going wage for a good carpenter was seven dollars a day (Hitchcock 1968:8).

While carpenters could make a good wage by eastern standards, miners reportedly made 15 to 60 dollars a day (Hitchcock 1968:12). Ludwig, of course, saw the flurry of excitement occasioned by the Arbuckle strike and, like many others, decided to investigate. While impressed by the mines, he was even more impressed by the growth of the area, especially its need for supplies and means to transport them. Steamboats brought provisions up the Sacramento River as far as Red Bluff, but from there supplies had to be carried overland to the various mining camps of Shasta County. Crossing Cottonwood Creek presented a major obstacle. Already several ferries existed, but Ludwig knew bridge building, and he believed money would be made by the person supplying such a facility.

C-074804

Two men, Jacob Deals and John Graff, shared Ludwig's vision of a Cottonwood Creek bridge, though they evidently lacked his ability to finance and engineer the feat. Deals and Graff had begun a bridge about two and a half miles upstream from the settlement of Cottonwood. In June 1855, Ludwig negotiated with John Graff to buy his interest for $1050, a sizable amount in those days. Along with the bridge came half interest in the 160 acres adjoining the bridge (Hitchcock 1968:15). On September 22, 1855, Ludwig purchased the remaining share of the bridge. By spring of 1856, the bridge was in operation, with tolls as follows:

2 horses and wagon	.50	empty	.25
4 horses and wagon	.75		.37 1/2
6 horses and wagon	1.00		.50
8 horses and wagon	1.25		.75
1 horse and buggy			.25
2 horses and buggy			.37 1/2
1 man and horse			.12 1/2
pack animal			.04
cattle and stock			.05
sheep and hogs			.03
footman			.10

[Hitchcock 1968:16].

To maximize profits from his bridge investment, Ludwig needed good access roads. First he helped construct a road through the Hooker district to Red Bluff. Then, with a new gold rush along North Fork Cottonwood Creek and Roaring River in 1861, a road to that area was established (McNamar 1952:12). Baker's Shasta and Red Bluff Express, which ran from Shasta to Horsetown to Janesville to Roaring River, crossed Cottonwood Creek at the Ludwig Toll Bridge (McNamar 1952:44-45, 50-51). In 1865, a toll road was built along South Fork Cottonwood and Dry creeks into the Rosewood area, and on to Beegum. The surveyor plats of 1876 show this route. Site CA-TEH-1305H is the reported location of a stage stop in the Farquhar district.

Via the Ludwig ranch, residents of the Farquhar/Rosewood area could reach Shasta and Red Bluff. Obviously, the Ludwig ranch was a major crossroad for the region. To accommodate travelers, the Ludwigs furnished blacksmith services and hotel facilities. In 1868, a two-story hotel-tavern was constructed which continued to prosper even after the railroad rerouted much traffic in 1872 (McNamar 1952:170). The Ludwig ranch was also a mail stop in the 1860s (Hitchcock 1968:19). The written literature on the area provides one account of a sojourn at the Ludwig ranch; evidently a group of Civil War volunteers passed through at one point. According to the account, ". . . Mrs. Ludwig baked bread all night long to satisfy the appetites of these mountain boys" (as cited in Hitchcock 1968:57).

In the early 1870s, the toll bridge was washed away in a flood. Ludwig, realizing that the new railroad would supersede any stage route, decided not to rebuild, but rather to concentrate on farming. The farm had always occupied a considerable amount of Ludwig's attention. To the 160 acres purchased in 1855, Ludwig added another 160 acres in 1859,purchased from John Dreibelis for $1500 (Hitchcock 1968:21). A mill was built near the bridge in the early 1860s (McNamar 1952:157). In 1865, Ludwig purchased 255 acres of the former Reading Ranch for $2500.

To staff his large enterprise, Ludwig hired Indian laborers. Like most settlers who employed numerous Indians, Ludwig's staff became known by his name. The Ludwig Indians congregated on the Ludwig ranch, conducting celebrations and burying their dead on the property. According to Ludwig's daughter, Indians migrated from such areas as Crow and Battle creeks to be "Ludwig Indians," because of the protection he provided. She tells a story of one Independence Day in Red Bluff, when she was a new bride, the ranch Indians visted her out of fondness (Campbell 1932:26). Other family stories also imply that relationships between the family and "their" Indians were most loving, and that the Ludwig's provided protection and fair treatment (TCR Field Data 1982). One incident in 1886, however, suggests that all was not perfect:

> Saturday, Dec. 18, 1886
>
> Attempted Cremation
>
> A most dastardly attempt at arson, robbery and wholesale murder was attempted one mile west of Cottonwood, Monday morning about 5 o'clock, at the residence of Mrs. Ludwig, a wealthy widow. Mrs. Ludwig's brother, who was sleeping in a room upstairs, was awakened by the smell of coal oil and smoke. Rushing downstairs, he found the house on fire, which he succeeded in putting out. Five gallons of coal oil had been used to saturate all the lower rooms, evidently with the intention of burning the whole family. The perpetrators had packed three valises with jewelry, money and valuables but dropped them in the yard and fled. One of the domestics has been arrested on suspicion.
>
> Saturday, Dec. 25, 1886
>
> A woman has confessed to the attempted arson and robbery of Mrs. Ludwig's residence at Cottonwood. She was formerly a servant in the house and had accomplices who are still at large. She occupies a room in the Shasta jail.
>
> Saturday, Jan. 1, 1887
>
> The girl accused of firing the house of Mrs. Ludwig was examined before Judge Knox of Shasta this week, whereupon she was turned loose upon furnishing $500 bail, but the District Attorney got out a bench warrant and had her rearrested.
>
> Gussie Yeaton, charged with an attempt to burn the residence of Mrs. W. Ludwig at Cottonwood last December, after three trials was convicted in Shasta last week, the jury remaining out ten hours [Hitchcock 1968:35].

Life in the Project Area, 1848-1870

The first indication of social life in the Cottonwood Creek area comes from a description of a ball at the Hontoon house near Cottonwood on January 22, 1854, in a letter by Fannie Reading to her mother. On May 6, 1854, the "substantial citizens" of the region all traveled to Tehama to attend a ball and take a free steamboat ride. On

C-074806

Christmas of 1857, we find the Readings crossing the Cottonwood to attend a party some four miles upstream (McNamar 1952:218). An article in the March 10, 1858 edition of the Red Bluff Beacon gives an idea of the participants of the parties:

> On Cottonwood Creek, between Tehama and Shasta counties, the white men take their Indian concubines to balls in bold imitation of respectable people. The squaws have learned all the steps taught in dancing schools. The newspaper thinks that Cottonwood Diggers have an unenviable reputation as regards morals [as cited in Bleyhl 1978:150].

A parallel contemporary report stated:

> Cotillion parties are becoming quite fashionable in our neighborhood [Cottonwood], and it is an astonishing fact that the native morales [sic] are becoming Americanized [as cited in Peterson 1965:87].

The few White women who did settle along the remote portions of Cottonwood Creek in the early decades must have had a lonely, sometimes even dangerous life. An 1866 news article recounts the problems of one woman:

> We read in the Tehama Observer that a lady residing on the Middle Fork of Cottonwood in that county killed a man by shooting him through the head with a pistol. She has a husband and is the mother of several children and was obliged to resort to the extreme measure to save her honor, her husband being absent at the time [Sacramento Bee 1966:n.p.].

The Railroad and New Settlers, 1870-1900

Despite Ludwig's roads, the project area remained isolated until the railroad's arrival in 1872 provided an inexpensive way to market agricultural products. Without a ready market, the farmers of the project area mostly produced for their own families' consumption, plus perhaps some livestock for cash sale. After the coming of the railroad, more settlers were attracted to the area, and they engaged in more diversified production.

The building of the railroad itself was an "event." The line was surveyed in 1871. William Ludwig, like fellow rural Americans in other areas, saw the railroad as a mixed blessing. While good for his farm, the railroad would destroy his toll bridge and hotel business. One proposal was for the railroad to cross Cottonwood Creek at the Ludwig bridge and divide his holdings--a consequence Ludwig opposed.

Matthew Marti (alternately spelled Marty), who owned land in the project area, similarly resented the railroad's intrusion on his farm. The survey teams of 1871 treaded across his grain fields, destroying part of the harvest. Marti tore out survey pegs, rebuilt his destroyed fences, and eventually took the railroad to court. But nothing halted destiny: the next year the railroad was built on Marti's land, on schedule. Marti's grave site is CA-TEH-1357H.

C-074807

The railroad was finished in 1872, the line going through the Hooker district, just east of the project area. It was constructed primarily by Chinese laborers. One news article of the time noted that 200 Chinese were expected to arrive that week, 300 more the next week, and a thousand during the month (Boggs 1942:526). Another news article discussed the construction as follows:

> Red Bluff Sentinal, Apr. 20, 1872.
> Major Cadwallader, supt. of construction dept. of the Major Oregon branch of the Central Pacific RR, informs us that there are now over 1000 men at work between here and Cottonwood. A full quota of track layers are laying track between here and Blue Tent creek. All boarding and sleeping cars were ordered to the front yesterday. The Hooker cut will be completed inside of two weeks. From Hooker cut to Cottonwood the grading is light. Mr. Cadwallader thinks the track layers will hardly be able to overtake the graders before they reach Cannon house.
> Red Bluff Sentinal, May 4, 1872.
> From Mr. Cadwallader we learn that the Hooker cut was completed yesterday. All hands will move to Cottonwood today. Pile drivers will go up Monday and begin work on the Cottonwood bridge [as cited in McNamar 1952:103-104].

One by-product of the railroad was the town of Hooker, which the railroad literally manufactured to service the area. Crews dug a well and constructed a depot--the rest of the town developed on its own. For 30 years Hooker was home base for section crews. Capper Dubecker, a local farmer, supervised a section crew of 150 men, mostly Chinese (McNamar 1952:104).

In the early twentieth century, a railroad line was surveyed through the Bowman-Farquhar and Rosewood districts by the Hoxey Lumbering Company (McNamar 1952:89). It was never built, probably because by that time autos and trucks provided a less expensive alternative to the railroad.

The population of the project area increased rapidly following the construction of the railroad in 1872. Most of the new settlers probably were attracted by the area's own agricultural merit. However, the railroad itself undertook a propaganda campaign and colonization project which lured many settlers. The railroad had good reason to concern itself with colonization. To encourage railroad construction, the government had granted the company rights-of-way plus alternate sections of non-mineral land equal to 20 sections of land for each mile of rail constructed (Giles 1949:139). This accounts for the checkerboard pattern of land ownership seen on early maps. Railroad companies were supposed to use the proceeds from the sale of the land to help defray costs of construction. Thus, the various railroad companies in California and elsewhere competed with each other to attract would-be settlers. An 1886 article describes the activities of the Southern Pacific Railroad Company as follows:

> . . . the Southern Pacific Company is decided to make another earnest effort to obtain for the state of California a fair share of the immigration overflowing the more densely populated

> sections of the United States. To this end, the company has established an immigration agency in the city of Chicago, which will be under able and official direction of H. M. Van Arman. This is a move on the part of the Southern Pacific Railroad Company which cannot fail in its objective and the public will duly appreciate the general benefits to flow from it. The agency will disseminate general information in regards to the resources in agricultural productiveness of Northern California, and contribute to the more rapid settlement and increased population [as cited in Boggs 1942:724].

The promotions worked. Thousands came by train to seek their fortunes farming in California. Local residents, however, were not always sure they wanted new neighbors. As the following newspaper commentator noted:

> Twenty-five men came from the railroad depot to Foster's Hotel led by D. H. Honn of the California Immigration Association. To see such an influx of people in Cottonwood was a matter of surprise and conjecture until one of our residents . . . made it known that the motley score were looking for land to pre-empt, homestead or buy. The party was composed of Germans, Italians, and a few Americans, and the day following their arrival here was spent in rambling around over the country viewing the vacant land. About a dozen seemed pleased . . . and have, I believe, commenced taking steps to secure it [as cited in Peterson 1974:15].

Many of the settlers lacked the necessary resources to make a living by farming. By contrast some did well, due to hard work and a little luck. An 1887 article in the Cottonwood Index describes the success of one fortunate settler:

> One year ago this month Matt Ringle and family arrived in Cottonwood from Michigan. They at once obtained 160 acres of unimproved land in the foothills about fifteen miles west of here in the "termal belt." Mr. Ringle now has forty acres fenced in, twenty-five acres in wheat. He also has two acres fenced with pickets for a garden and everything imaginable planted and growing there. He has 800 grape cuttings which are growing nicely. Mr. Ringle has accomplished more in the last twelve months than many others in twelve years. It is easy to see why some people get ahead, while others cry hard time and damn the country [as cited in Peterson 1974:15].

The less fortunate lived perpetually on the brink of disaster. An 1889 news article describes this group:

> The country tributary to Cottonwood as well as Anderson has been settling up for years with a class of people who

> unfortunately were poverty stricken. They have some seasons met with success, on a small scale, and again with adversity, in working their little farms, raising a few head of stock, poultry, etc. This firm of Schuman & Price [Cottonwood merchants] has carried these poor people over year after year, giving them a chance to improve their properties by furnishing them with "the bread of life" on the credit system [Shasta County Scrapbook n.d. (1889)].

One of the criteria of success was the quality of land obtained. Along river land one could do well; on dry hilly land, the farmer faced more difficulties. Yet only the modestly wealthy could obtain creek land, which sold from between five and 25 dollars an acre in the 1880s (Shasta County Scrapbook n.d.). The population of the project area consisted of the poor farmer, who was not financially successful, and his wealthier--or luckier--counterpart. A few examples of each type of family will be briefly profiled here.

Most area settlers, though not making a fortune or even leaving their names on the area, were able to make a living for themselves and their families. The Saunders, who ranched along Salt Creek west of Rosewood, was one of these families. The earliest documentary record for land use of their future ranch comes from the 1878 county map, showing J. N. Montgomery as owner (Shackelford and Nugent 1878). Since Montgomery does not appear in any other local records, he must have been a land speculator or rancher headquartered elsewhere. By 1887, Ellison and Saunders owned the land. Edgar Walter Saunders was born in Virginia in 1858. He registered to vote in the Henleyville area 1879. By 1887 he lived in the project area. The 1900 census lists him as a Rosewood farmer. In 1897 he married Frances Swain, a long-time local school teacher. The Saunders were primarily ranchers, growing crops only as necessary to provide food for the family. The dugout on their property (TEH-1295H) is reputed to be a winecellar (TCR Field Data 1982). Perhaps the Saunders, like many residents in the area, at one time believed they could make money in wine.

The Freeses, who ranched at the other end of the project area (TEH-1262H), are also fairly typical settlers. The Freese family evidently took up residence sometime between the 1880 census and the making of the 1887 county map, because their name does not appear in the former document, but does appear in the latter. The Freeses had "just a little place"; they did not have fences or other improvements (TCR Field Data 1982). In fact, like most small farmers, all that remains of their house site is a well, some fruit trees, and a grave (CA-TEH-1262H and possibly -1303H). For the names of these less successful farmers, we have only to count the short-term landowners on the maps of the era, or scan the census lists full of names no one now remembers. Archeological survey crews uncovered numerous remants of this often forgotten hoard, who individually are so insignificant, but who collectively farmed the backbone of America.

Antone Bowman, for whom Bowman Road is named, was among the class of successful settlers. Born in Switzerland in 1839, Bowman moved to the area in the early 1870s. He married Josephine Donza Bowman and died in 1883 after accumulating large tracts of land (Hitchcock 1982:n.p.; McNamar 1952:88).

Towns

The growing area needed services such as stores, schools, and post offices. Two locations in the project area filled this role: Rosewood, in the western portion of the project area, and Farquhar in the eastern section.

Explaining why townsites sprung up where they did in rural America has always interested historians. Of course, the needs of area residents for services explains the existence of towns. In a pre-automobile era, six miles was about all a farmer could realistically travel on a daily basis for such routine activities as going to school, picking up mail, or purchasing sundry supplies. Schools, stores, post offices tended to be approximately six miles from the nearest counterpart (TCR Field Data 1982). While distance explains the approximate spacing of towns, their exact location seems to have depended upon which of the neighboring farmers took an interest in operating a school, post office or store.

The history of the Rosewood townsite (CA-TEH-839H) illustrates the role of fate in determining town locations. Based on documentary research and interviews with old timers prior to 1952, local historian Myrtle McNamar suggests that a Mr. Cole operated an inn at the future townsite as early as 1861. The only other information on Mr. Cole is provided by the following:

> On my trip to Sacramento I stopped over night at the Cole fork of Cottonwood Creek. A man by the name of Cole kept the house. . . . There was an old fellow living between Kelley's and Grave's on Dry Creek and the Cole fork of Cottonwood Creek, known as 'Old Sucesh.' The old fellow frequently kept lodgers, as did everybody living on any public road or trail in those days. Old Secesh's (???) place was four miles from the Kelley and Graves place [as cited in McNamar 1952:87].

Rather than Cole, Kelley, Graves, or Old Secesh, however, the first settler of the future Rosewood to be recorded in public documents was E. C. Howard. The General Land Office surveyor recorded Howard's house in the northeast corner of Section 21; his farm stretched along the creek and was bisected by the road from Cottonwood (Tracy 1854). The 1878 county map also shows E. C. Howard as living on the future townsite (Shackelford and Nugent 1878). In 1879, as part of the payoff for building the railroad, the Central Pacific received title to the unowned land in the area. According to the 1887 county map, German Savings (who purchased the Central Pacific Railroad's interest) owned most of the land in the vicinity. Durrer is shown owning the northwest corner of Section 21 and the middle portion of Section 20. Issac Boggs, who was headquartered near the town of Cottonwood, was the neighboring landowner in the northeast corner of Section 20. The 1887 map located the post office in Durrer's house in Section 21. It is labeled "Rosewood P.O." (Shackelford 1887).

According to Mrs. McNamar's sources, Issac Boggs at one time owned the townsite. In 1870 he sold a piece of his land to Joseph Dunn, who built a house and hotel, and another piece of land to Mint Marcus, who built a competing hotel: ". . . there was nothing between these strong competitors but a narrow strip of land . . ."

(McNamar 1952:87). However, other sources suggest that Mint Marcus was a later postmaster, not a contemporary competitor. According to public records, the post office of Rosewood was established July 6, 1889, with Henry Stives as first postmaster. Mint Marcus became the second postmaster in 1904 (Hitchcock 1982:449).

Rosewood was also the site of the local school, called Dry Creek School. Established in 1882, it had E. C. Howard as first teacher. The schoolhouse was first located on Dry Creek, then moved to the Laffoon place, and finally to Rosewood (McNamar 1952:209).

The town was short lived. A 1903 map shows most of the land of the area owned by Riley and Hardin. The Riley family was one of Red Bluff's earliest ranch families, whose cattle ranged all over the area (TCR Field Data 1982). No mention of Rosewood is found on the 1903 map (Tehama County 1903). Rosewood is again mentioned on a 1908 map (Punnet Bros. 1908). In 1909, the post office of Rosewood was taken over by the town of Hunter (Hitchcock 1982:449).

Information about Rosewood's early residents is patchy at best. Isaac Boggs preempted his land in the 1850s. He was a lawyer turned sheep rancher (Hitchcock 1982:draft). Joseph Durrer was born in Switzerland in 1851. He first appears in the project area in the 1879 Great Register. He is also listed in the 1880 and 1900 censuses and the 1881 county directory. He is always listed as a farmer, rather than as a hotel keeper or otherwise. He died in 1930 and was buried on his ranch. Also buried there are his wife, who died in 1931, and his brother-in-law, who died in 1898 (Hitchcock 1982:70).

By way of conclusion, the town of Rosewood was differentiated from other ranches in the area because it was an official post office site. The hotel and store were only part of Durrer's house, and lasted as long as the rich mines of western Shasta County kept travelers moving along the road to Red Bluff. Teamsters from the Harrison Gulch Mine stopped there, and a blacksmith shop was present until as late as 1922 (TCR Field Data 1984). Though the town no longer existed, some area residents would still refer to the location as Rosewood.

The "town" of Farquhar is even less deserving of the name, being variously the name of a school and post office. Colonel Farquhar was an early settler in the area, but his relationship to the school and post office is otherwise undocumented. The Farquhar post office opened in 1891 and was discontinued in 1895. Andrew McNamar was postmaster (McNamar 1952:54). The Farquhar school opened sometime between 1875 and 1880, and operated intermittently until modern times (McNamar 1952:209).

The Twentieth Century

While agriculture continued to dominate life in the project area in the early twentieth century, "modernization" slowly changed the way of life. With more people and better means of transportation, the era of the small, informal ranch was doomed. Settlers in the nineteenth century needed only small parcels of land because they could graze their stock on the open range. As the land became more densely occupied, however, ranchers could not simply let their stock roam. Pigs trespassing

in a neighbor's fields could and did result in murder (TCR Field Data 1982). With an end to open range, only those settlers who could afford to gain legal title to land could stay--the rest sold out and left. One of the most important changes of the twentieth century, then, was the tendency toward land concentration and absentee ownership.

The largest landholding in the area was the Diamond Ranch (or Range), first owned by Riley and Hardin. Largely consolidated by 1903, it consisted of over 52,000 acres. Some was bought cheaply from one-year homesteaders, who stayed long enough to gain title to the land and then sold out to Riley and Hardin at a prearranged price (TCR Field Data 1984). Around World War I, the Diamond Ranch was sold to the Haas Candy Company; it was sold again in the 1920s to a group of five lawyers (TCR Field Data 1984). Some local residents and/or their parents leased from, or worked for, the Diamond Ranch for many years and remember it well, always by the same name.

The ranch was used primarily for raising cattle and hogs, until a cholera epidemic in the 1930s devastated the hog stock. Some sites along Dry Creek (for example, the well and pump pad at CA-TEH-1281H) are the remains of Diamond Ranch facilities. Others, not remembered by former employees, may be the remains of homesteads bought out earlier by Riley and Hardin or other Diamond Ranch owners (CA-TEH-1280H?). Still others are the locations of farms not sold to the Diamond Ranch (CA-TEH-1279H), or possibly the homes of lessees of the property (CA-TEH-1285H?).

After about 1910, many small landowners who appear on county maps and records were not actually farmers, except on a very small scale. More often these men worked as seasonal day laborers who managed to buy some cheap land near a school (TCR Field Data 1982). Gradually, the less substantial landowners began to leave the area in search of new employment. World War I was an important stimulus to this exodus. The young men who went off to war frequently acquired new urban skills and never returned. The Depression also took its toll on the area's population, since it threw farmers into bankruptcy. Prunes, which sold at eight cents a pound in 1930, sold for ten dollars a ton in 1932 (Peterson 1965:3). The fruit industry, in which many area residents had participated, never fully revived, although bootlegged whiskey gave a bit of spending money for a time (Peterson 1974:36). Livestock prices were equally depressed.

Bad weather also played an important role in the demise of the small farmer in the Tehama area (TCR Field Data 1984). The years of 1923-1924 and 1930-1932 were all dry ones. Then, in 1937-1938, just as economic conditions began to improve after the Depression, a severe winter befell the area. Eighteen inches of snow covered Cottonwood; flooding was severe (Peterson 1974:41).

Technology affected life in the project area. With the advent of the automobile, children easily traveled longer distances to school and farmers to market and post office. In fact, after the automobile, more farmers chose to live in town and commute to their farms. For those remaining in the project area, life changed too. The telephone arrived in the western portion of the district in 1909; electricity arrived in the 1930s in some parts, and as late as the 1950s in others.

The Diamond Ranch broke up in the 1940s. At that time, at least two large-acreage parcels were bought by families who still own the land today,and the practice of absentee ownership has continued. Some of the land has been leased to area residents for years; other portions are managed by live-in caretakers. Cattle are still raised, and spend the winter seasons on Tehama holdings. Lately, tree-cutting has been contracted out over much of the area. This practice was also common in the past, when large areas of oak trees were cleared.

With the demise of the small farmer, the "traditional era" passed. Today, the project area is used by farmers, many of whom have deep ties to the land, but who use the land in more contemporary ways. Today, America's "common man" lives in the cities; our rural progenitors, and their way of life, are almost forgotton. The significance of the Tehama project area, and more particularly of the physical remains which it contains, is in its portrayal of this now lost "ordinary America." Each site alone is unexceptional; there are literally thousands of sites in America with similar significance. Collectively, however, these sites tell the story of a past era.

CHAPTER 8

PROJECT IMPACTS ON THE IDENTIFIED CULTURAL RESOURCES

The 122 identified cultural resources are divided among seven of the eight zones of the proposed Tehama Lake project (Table 18). Twenty-one sites are above gross pool of 696 feet. Forty-one are in the potentially very destructive fluctuation zone between 645 and 696 feet; while 32 occur between 564 and 645 feet and might be exposed during droughts above minimum pool. Only 14 are below 564 feet, minimum pool level. Possibly as many as 17 sites are within the proposed borrow area behind the dam, which ranges from the 510- to 570-foot contour lines, and would be destroyed by dam construction. The precise number of sites will not be known until the limits of the borrow areas are set by the Corps in 1985. Only one cultural resource is situated on the dam axis. Downstream from the dam, eight sites might be affected by construction activities. Five sites were recorded in or close to the five proposed Bowman Road realignments along Pine Creek. Only one site was located in the proposed Mitchell Gulch spillway area.

The fluctuation zone was calculated from figures supplied by the U.S. Army Corps of Engineers (1980:Appendix F, Plates F-11a, F-11b, F-14, and F-16). The minimum elevation of the fluctuation zone is assumed for the purposes of this report to be 645 feet above mean sea level--the height at or above which the reservoir elevation is expected to stay for at least 85 percent of its operating life (U.S. Army Corps of Engineers 1980:Plate F-16). Sites located between the fluctuation zone and minimum pool (564-645 feet) will generally be subjected to different (conceivably less severe) impacts from lake level fluctuation, and are consequently grouped separately.

Above Gross Pool (696 Feet)

The 21 sites above gross pool include 15 with prehistoric and six with historic components (Table 19). This represents 17.2% of the cultural resources thus far identified, 20 of 93 midden loci (21.5%), and four lithic scatters out of 43 loci (9.3%). The historic components represent five of the 27 historic occupation sites (18.5%) and one of the six cemeteries or grave sites.

The prehistoric sites above gross pool contain a representative sample of almost every size of midden found within the project boundaries. The eight middens cluster around the 30th to 50th largest in size, and include two of the three largest deposits. Only the very smallest middens are not well represented (two of the 20 smallest). Throughout the project area, the small middens tend to be on the intermediate terraces, and 15 of the 20 smallest are in areas which will be flooded. Most of the sites above gross pool with middens are located on the upper reaches of Dry Creek, Salt Creek and South Fork Cottonwood Creek. The only native tobacco plant (Nicotiana attenuata) was found in this zone on Salt Creek (CA-TEH-387, Locus B).

Twenty-seven (28.7%) of the 94 house pits are above gross pool. Most of the sites with house pits are on Dry Creek and Salt Creek, largely due to the extensive disturbance to middens along the terraces of South Fork Cottonwood Creek.

Of the four lithic scatters, one is above Salt Creek, two are on the high south side terraces overlooking South Fork Cottonwood Creek, and the third is in the steep ridges between South Fork Cottonwood Creek and Long Gulch. The latter site is one of the six large unifacial core scatters recorded for the project area.

Historic sites above 696 feet include the Durrer family cemetery (CA-TEH-840H) above the town site of Rosewood, and five historic occupation sites. The latter include the Dinkel Place (CA-TEH-1279H) and the Saunders Place (CA-TEH-1295H).

Fluctuation Zone (645 to 696 Feet)

If Tehama Lake dam is built, the sites in this elevation range will be heavily impacted, if not totally destroyed, over a period of years. The 41 sites will be subjected to repeated raising and lowering of the water level on a yearly basis (Table 20). At the same time, wave action will contribute to destruction of the cultural resources. If the use of motor powered boats is prohibited on the lake, the rate of erosion will be slowed, but not stopped. During the years of low rainfall in 1977 and 1978, Shasta, Folsom, and Camanche lakes were visited by various archeologists and it was determined that, of the sites remaining after construction activities were completed, the ones most heavily impacted were those in the fluctuation zones. The final report of the National Reservoir Inundation Study (Lenihan et al. 1981), which includes the Foster and Bingham study at Folsom Lake (1978), describes the effects of action in the fluctuation zone on archeological sites, and emphasizes how destructive it is of middens and other sites.

Of the prehistoric sites and features, 34 midden loci (36.5%), and 14 lithic scatters (32.5%), occur in this zone. Five of the latter sites are unifacial core scatters. Thirty-four house pits (36.1%) are located in the fluctuation zone (Table 20). Middens are very evenly distributed by size, with only the largest sites absent. Most of the major lower terraces occur in this elevation range, thus it is not surprising that most of the major middens are also are located here.

The 15 (35.7%) sites with historic components contained a good cross-section of almost every type of post-1850 material. Nine historic occupation sites (33.3%) were represented, including the Durrer ranch (CA-TEH-385H); one town (Rosewood, CA-TEH-839H); a dump; and the single mining site (CA-TEH-1202/H). Specific features were: 11 wells; six dumps; five depressions; five artifact scatters; four foundations; four standing structures; three collapsed structures; three footings; two privies; two hearths; one trash pit; one dugout; and one corral and feeder (Table 4). While these are only 19.1% of the sites in the project area, they will be the most adversely affected while the reservoir is in operation.

Between Fluctuation Zone and Minimum Pool (564-645 Feet)

The 32 sites (26.2%) in this portion of the main reservoir constitute the second largest number of cultural resources in the project area (Table 21). These sites, while not subjected to the extremes of erosion and other disturbances characteristic of the fluctuation zone, will still be adversely affected. In some cases cultural deposits will be eroded away, and during periods of low water (due to drought and other reasons) these sites will be subjected to much of the same adversity as those in the fluctuation zone.

Prehistoric sites include 28 middens (30.1%) and eight lithic scatters (18.6%). Only three sites had house pits, and of the 20 of these features, CA-TEH-1211 had 12. The house pits constitute only 21.2% of those from the Tehama Lake project area. Also of significance is the size of the middens. Thirteen (43%) of the 30 smallest deposits occur in this portion of the proposed project, and three are among the 13 largest. The lithic scatters are of small importance and differ little from those above gross pool.

The 14 sites with historic components constitute 33.3% of this type of resource (Table 4). Nine (33.3%) historic occupation sites, two artifact scatters, one well and a grave were recorded.

Below Minimum Pool (564 Feet)

The 14 cultural resources in this area will likely be totally destroyed by borrow activities (Table 8.5). It will make no difference that their former locations will be permanently under water, since they will no longer exist. Twelve of the sites have prehistoric components and four of the 14 contain historic materials.

None of the historic sites are significant, though a few of the artifacts are suggestive of the earliest historic occupation of the area. All of the middens are included in one of the proposed prehistoric National Register districts.

Cultural Resources Located on the Dam Axis

Only one archeological site (CA-TEH-1268) is on or close enough to the proposed dam location to be totally destroyed during construction (Table 23). This midden is on the edge of the southern terrace overlooking South Fork Cottonwood Creek. The site is the 21st largest, although the surface has been extensively altered by ranching and other historic activities. One site (CA-TEH-1267) is very close to the northern end of the dam axis and could be damaged or destroyed during construction activities. This small midden is unique for the project area in that it is located well away from permanent water on the high terrace overlooking South Fork Cottonwood Creek.

Cultural Resources Downstream from the Dam Location

The eight sites identified were all on the South Fork Cottonwood Creek (Table 24). No sites were found in the hilly area to the northeast of the dam axis. Only one lithic scatter is located on the north side, while three prehistoric midden loci and two additional lithic scatter sites are on the south side of the creek. All have been impacted by recent agricultural activities.

Bowman Road Relocation

Five cultural resources were found during the archeological survey of the five proposed road alignments (Table 25). The relatively steep rolling hills away from major water sources yielded few sites elsewhere in the project area, and that situation prevailed here as well. Although two of the sites contain shallow middens, all are predominately lithic scatters near Pine Creek or its unnamed intermittent tributaries.

Cultural Resources in the Proposed Spillway Area

The only site located in the Mitchell Gulch drainage was the Marty grave (CA-TEH-1357H) at the confluence with South Fork Cottonwood Creek. This metal-lined casket was interred in 1909.

Summary

As can be seen above, the archeological sites identified in the field are fairly evenly spread throughout the project area. Thirty-four sites, or approximately 28%, are either above gross pool or in situations (below the dam location or peripheral to the Bowman Road realignments or the Mitchell Gulch spillway) where they could be avoided. While 18 (19.3%) of the prehistoric midden deposits might be avoidable, the majority of the largest and potentially most significant are either in the fluctuation zone or between it and minimum pool level. Additional investigation of the middens to be directly impacted is desirable, since this constitutes the largest recorded grouping of peripheral Nomlaki/Bald Hills Wintu middens. A significant portion of the proposed Native American National Register District would still exist if the project is built.

The historic archeological sites represent several aspects of the exploitation, early settlement and post-1900 use of the area. Nine (21.4%) of the historic sites are above gross pool level or in areas that could be avoided by construction activities. As with the prehistoric remains, these sites cover the whole range of materials representing the post-1850 use of the Tehama Lake area. A large number of early historic occupation sites, and most of the remains associated with the community of Rosewood, would be destroyed.

TABLE 18

CULTURAL RESOURCES
LOCATED IN PROPOSED PROJECT DEVELOPMENTS

PROPOSED DEVELOPMENTS	PREHISTORIC	HISTORIC	PREHISTORIC & HISTORIC	TOTAL
Above Gross Pool 696 feet	15	6	0	21
Fluctuation Zone 645-696 feet	26	10	5	41
Between Fluctuation Zone and Minimum Pool (564-645 feet)	18	12	2	32
Below Minimum Pool (564 feet)	10	2	2	14
Dam Construction Area	1	0	0	1
Downstream from the Dam Location	5	3	0	8
Bowman Road Relocation	5	0	0	5
Spillway (Mitchell Gulch)	0	0	0	0
TOTALS:	80	33	9	122

TABLE 19

CULTURAL RESOURCES ABOVE GROSS POOL
(696 FEET)

STATE TRINOMIAL	TYPE	ELEVATION(ft)
Prehistoric Sites:		
CA-TEH- 387	Middens, (2 loci)	700-730
- 388	Midden	700
-1196	Middens (4 loci)	700-760
-1197	Midden	710
-1198	Midden	725
-1200	Midden	725
-1232	Midden	720
-1234	Midden	710
-1235	Lithic scatter	712
-1240	Unifacial core scatter	710-815
-1245	Middens (2 loci)	752-760
-1247	Midden, lithic scatter	750-755
-1249	Midden	755
-1251	Middens (2 loci)	740
-1253	Middens (2 loci), lithic scatter	705
Historic Sites:		
CA-TEH- 840H	Cemetery	715
-1279H	Historic occupation	700-710
-1282H	Historic occupation	700
-1283H	Historic occupation	695-710
-1295H	Historic occupation	715
-1297H	Historic occupation	715

TOTALS: 15 Prehistoric Sites
6 Historic Sites

TABLE 20

CULTURAL RESOURCES IN THE FLUCTUATION ZONE
(645 TO 696 FEET)

STATE TRINOMIAL	SITE TYPE	ELEVATION (ft)
Prehistoric Sites:		
CA-TEH- 384	Lithic scatter	648-663
- 386	Midden	670
-1199	Middens (2 loci)	680-695
-1201	Middens (2 loci)	656-689
-1203	Middens (3 loci)	650-695
-1204	Midden	685
-1205	Middens (3 loci), lithic scatter	645-692
-1208	Midden	673
-1209	Middens (2 loci)	665
-1212	Midden	658
-1214	Lithic scatter	670
-1215	Lithic scatter	662
-1219	Unifacial core scatter	650-785
-1233	Midden	690-710
-1237	Unifacial core scatter	670-740
-1238	Lithic scatters (2 loci)	650-655
-1239	Unifacial core scatter	645-732
-1241	Lithic scatter	645
-1242	Unifacial core scatter	600-811
-1243	Unifacial core scatter	640-790
-1248	Middens (2 loci), lithic scatter	680-735
-1252	Midden, lithic scatter	675-680
-1254	Midden	680-688
-1255	Midden	675
-1257	Middens (2 loci)	654
-1267	Midden	680
Prehistoric and Historic Sites:		
CA-TEH- 837/H	Middens (2 loci), historic occupation	655
-1202/H	Midden, mining camp	640-705
-1236/H	Midden, historic occupation	680-700
-1246/H	Middens (3 loci), historic occupation	680-720
-1250/H	Middens (2 loci), historic occupation	680-735

Table 20, Cultural Resources in the Fluctuation Zone (continued)

STATE TRINOMIAL	SITE TYPE	ELEVATION (ft)
Historic Sites:		
CA-TEH- 385H	Historic occupation (Ranch)	660
- 839H	Town	675-710
-1280H	Well, artifact scatter	690-700
-1285H	Historic occupation	640-683
-1288H	Dump	635-660
-1289H	Historic occupation	650-720
-1296H	Historic occupation	688
-1298H	Historic occupation	685
-1299H	Well, brick scatter	675-680
-1300H	Historic occupation	670-680

TOTAL: 41 Sites
26 Prehistoric Sites
5 Prehistoric and Historic Sites
10 Historic Sites

TABLE 21

CULTURAL RESOURCES BETWEEN
THE FLUCTUATION ZONE AND MINIMUM POOL
(564 TO 645 FEET)

STATE TRINOMIAL	TYPE	ELEVATION(ft)
Prehistoric Sites:		
CA-TEH-1206	Lithic scatter	630-640
-1207	Midden, lithic scatter	620-630
-1210	Middens (2 loci)	602-610
-1211	Middens (4 loci)	600-630
-1216	Lithic scatter	580-645
-1217	Midden	580
-1218	Midden	590
-1220	Midden	595
-1221	Midden	590
-1222	Midden	575
-1224	Midden	570
-1225	Lithic scatter	570
-1226	Lithic scatter	570
-1244	Middens (2 loci)	603
-1256	Lithic scatter	625
-1259	Middens (2 loci), lithic scatter	554-604
-1260	Middens (2 loci), lithic scatter	580
-1261	Middens (2 loci)	570
Prehistoric and Historic Sites:		
CA-TEH-1223/H	Midden, historic occupation	550-610
-1258/H	Midden, historic occupation	574
Historic Sites:		
CA-TEH- 841H	School	580
-1281H	Well	635
-1284H	Historic occupation	605-615
-1286H	Historic occupation	575-585
-1287H	Artifact scatter, dump	604
-1290H	Historic occupation	575-610
-1291H	Artifact scatter	575
-1292H	Historic occupation	590
-1293H	Historic occupation	582
-1294H	Historic occupation	580
-1302H	Historic occupation	580-595
-1303H	Grave	592

TOTALS: 32 Sites
18 Prehistoric Sites
2 Prehistoric and Historic Sites
12 Historic Sites

TABLE 22

CULTURAL RESOURCES BELOW MINIMUM POOL
(564 FEET)

STATE TRINOMIAL	TYPE	ELEVATION(ft)
Prehistoric Sites:		
CA-TEH- 838	Midden, lithic scatter	550-555
-1213	Midden	544
-1228	Lithic scatter, housepits	540
-1229	Midden, lithic scatters	563
-1230	Midden	560
-1231	Midden	555
-1263	Midden	553
-1264	Midden	543
-1265	Lithic scatter	515
-1266	Midden, lithic scatters	520-560
Prehistoric and Historic Sites:		
CA-TEH-1227/H	Midden, lithic scatter, historic occupation	555
-1262/H	Midden, historic artifact scatter	555-560
Historic Sites:		
CA-TEH-1301H	Artifact scatter, well, depression	559
-1304H	Hearth	525

TOTALS: 14 Sites
10 Prehistoric Sites
2 Prehistoric and Historic Sites
2 Historic Sites

TABLE 23

CULTURAL RESOURCES LOCATED ON THE DAM AXIS

STATE TRINOMIAL	TYPE	ELEVATION(ft)
Prehistoric Site:		
CA-TEH-1268	Midden	537

TABLE 24

CULTURAL RESOURCES DOWNSTREAM FROM THE DAM LOCATION

STATE TRINOMIAL	TYPE	ELEVATION(ft)
Prehistoric Sites:		
CA-TEH-1269	Lithic scatter	531
-1270	Lithic scatter	510-526
-1271	Lithic scatter	510
-1272	Lithic scatter	506
-1273	Lithic scatter	506-511
Historic Sites:		
CA-TEH-1305H	Well	510
-1306H	Well, artifact scatter	510
CSUS-102H	Grave	490

TOTALS: 8 Sites
5 Prehistoric Sites
3 Historic Sites

TABLE 25

CULTURAL RESOURCES LOCATED IN THE PROPOSED
BOWMAN ROAD REALIGNMENTS

STATE TRINOMIAL	TYPE	ELEVATION(ft)
Prehistoric Site:		
CA-TEH-1274	Lithic scatter	675
-1275	Lithic scatter (4 loci)	555-590
-1276	Lithic scatter	580
-1277	Midden	571
-1278	Midden	618
TOTAL: 5 Sites		

CHAPTER 9

EVALUATION OF SIGNIFICANCE FOR THE NATIONAL REGISTER OF HISTORIC PLACES

Evaluation of Significance: Archeological Resources

The archeological sites identified during the 1982 investigations of the cultural resources of the Tehama Lake portion of the Cottonwood Creek project have been evaluated for significance as required by the contract. Those sites determined as potentially eligible under the National Advisory Council on Historic Preservation Regulation (36CFR Part 800) have been grouped as a district and have had a National Register of Historic Places Inventory Form (FHR-8-300) completed (Appendix B). On the basis of discussions with Steve Mikesell and Michael Rondeau of the State Office of Historic Preservation and the comments of the reviewers of the Dutch Gulch Lake report (Johnson and Theodoratus 1984a), it was determined that 49 of the 122 cultural resources do not warrant nomination to the National Register; 16 prehistoric and 33 historic sites would not qualify for nomination, and these were dropped from further consideration (Table 27). The large number of historic sites not considered resulted from the lack of other than local interest in most of the remains, and the fact that the majority of the sites had been heavily impacted by recent agricultural practices.

Prehistoric Sites

Prehistoric remains were organized into two categories during the evaluation. These included one proposed National Register District (Table 26), and 16 sites which did not warrant inclusion on an individual basis (Table 27). In addition, all 89 sites were ranked for significance on the basis of ten variables (Table 28). These included: 1) site size expressed in cubic meters; 2) depth of the cultural deposit; 3) quantity of house pits; 4) presence of the remains of large structures (ceremonial house, chief's home, sweat house); 5) associated lithic scatters; 6) evidence of human remains; 7) quantity of miscellaneous features; 8) variety of artifacts; 9) quantity of surface artifacts; and 10) degree of disturbance to the deposit. The determination of significance and ranking based on the above criteria relate only to the data currently available. It is understood that a test excavation program would probably result in a substantial reordering in the ranking of sites and their significance with regard to the National Register. Whatever validity the suggested ranking has is based on the assumption that sites exhibiting greater complexity on the basis of observable surface characteristics will probably contain a wider variety of subsurface attributes as well.

The proposed ranking is not a substitute for sound archeological reasoning and is not intended as a means to limit future investigations only to large and complex sites. The ranked position of sites should serve as a guideline on the potential of certain prehistoric sites to yield a wide variety of data, not on whether they should be tested or in what order investigations should occur. In order to fully understand the prehistoric settlement and subsistence patterns in the Tehama Lake area, it will

be necessary to study a wide variety of sites. The boundaries for the proposed prehistoric district encompass a representative sample of all cultural resources thus far identified. Included are both large and small middens and lithic scatters. Any investigation of the prehistoric past would be inadequate if only the few large middens were studied. Sixteen sites were eliminated from further consideration primarily because many had been virtually destroyed by historic agricultural activities. A few, however, were left out because they were beyond the boundaries of the proposed district, and did not warrant inclusion on the National Register as individual entities. The proposed district was organized in such a way as to incorporate the majority of the sites and facilitate the investigation of a multitude of different research questions. The Tehama Lake area, for example, appears to have been peripheral to the large riverine settlements to the north and east, and carbonate dating suggests a high percentage of the sites may have been occupied earlier than those at Dutch Gulch. The hypothesized movement of the ancestors of the Wintu into the area, with an orientation toward the heavy exploitation of riverine resources, might explain the decline in use of the project area later in time. Additional testing of these sites might provide data applicable to the study of changes in resource acquisition and use. If this were chosen as one of the research paradigms to be studied, it would entail not only the testing of sites at Tehama Lake, but the large riverine settlements at Dutch Gulch as well. Therefore, the ranking established by using the ten variables would be most useful if only a limited number of sites could be tested. Within each grouping (e.g., large villages, small villages, lithic scatters) the sites likely to yield the most information could be identified and tested, thus maximizing the use of available funds in the acquisition of data.

Variable 1: Size of Sites

The size of the midden sites ranged from CA-TEH-1196 with over 9026 cubic meters to CA-TEH-1202H with only eight. The volume was computed using only the measurements of the actual midden, and did not include associated lithic scatter or off-site house pits and other features. Based on the holes dug at each site to determine the depth of the deposits, it appeared that most were deepest toward the center, becoming progressively shallower away from that point until they disappeared. The middens were oval or lenticular in shape. In order to determine their volume, the following formula was applied: length times width equals square meters, times maximum depth equals cubic meters, divided by a factor of three (to determine the value of the third of the deposit which doesn't exist because of shallower areas toward the edge and lack of square corners), and multiply by two to arrive at the approximate size. A variety of other techniques was tried, but the above formula seemed to represent best the actual midden volume. Point values were assigned in 500 cubic meter intervals, with a site less than 500 cubic meters receiving one point and a site between 9001 and 9500 receiving 18 points.

Variable 2: Depth of Cultural Deposit

It is usually assumed that the deeper a site, the more variety and complexity of cultural resources it is likely to contain. Depth, therefore, is often of great importance in determining the significance of a midden. The sites ranged from .1 to 1.5 meters in depth, and were ranked on the basis of one point for each .5 meters or segment of deposit present. Thus, .5 or less received one point, while 1.5 meters of midden was assigned a value of three points.

Variable 3: Quantity of House Pits

The presence of house pits on a site represents another important attribute. Well-defined pits indicate that at least a portion of the site has a late occupation component, and that information about construction techniques, house size, and Native American population dynamics may be recovered from these particular sites. There is no certainty that house remains will be preserved in or recovered from middens without surface house pits. The number of house pits at a site ranged from one to 15. A value of one point was assigned for every three pits.

Variable 4: Presence of Large Structural Remains

In most areas in California, the pits left after structures disintegrated are fairly uniform in size. In the Southern Cascade foothills southeast of Red Bluff, for example, they ranged between 2.5 and 3.2 meters in diameter, while in the Dutch Gulch Lake area they were slightly larger. Structures used for sweat houses and for ceremonial purposes by chiefs are relatively rare, thus their presence on a site is considered to be of considerable importance. Those structural remains felt to be of a ceremonial nature were given 15 points, while other large pits were valued at ten points. No features of the latter two types were found in the Tehama Lake area.

Variable 5: Middens with Associated Lithic Scatters and Lithic Scatters Only

Only 26 sites consisted of lithic scatter only. While such sites were judged to lack significance by themselves, lithic scatter occurring at a midden site enhanced the significance of the latter. Thirty-nine of the 63 middens had well-defined associated scatters of flakes and cores. Three points were assigned to each midden with this characteristic, and six points to sites which consisted of lithic scatters only.

Variable 6: Evidence of Human Remains

The presence of human remains is considered to be of considerable importance, particularly since Dubois' statement (1935:64) that cemeteries tended to occur about one hundred meters away from villages. This has been interpreted by many to mean that the Wintu and their ancestors did not bury their dead in occupation sites. Treganza's archeological work in the Trinity Reservoir area in the later 1950s seemed to confirm this view. He found few interments, even after several village sites were partially leveled with heavy equipment. The fact that interments are now known to occur in or immediately adjacent to five village sites with late occupation deposits at Dutch Gulch, as well as at three sites at Tehama Lake, suggests that a cultural pattern previously unknown may have existed in this part of California. For this reason, it was felt that those sites known to contain human remains were significant, and therefore were assigned an additional value of five points. Members of the Bald Hills Wintu community have emphasized that they do not want Native American interments disturbed. If such disturbance becomes necessary, they would like burials to be preserved out of harm's way.

Variable 7: Quantity of Miscellaneous Features

Besides structural depressions and burials, some sites had other associated features, each type of which was assigned a value of one point. For example, a site with an ash deposit and a rock feature would be accorded a value of two points.

Variable 8: Variety of Surface Artifacts

The variety of artifacts evident on the surface is usually indicative of a site's complexity. A wide range of artifact types generally reflects a more intense use or perhaps a lengthy occupation, while sites with few specimens are much less apt to yield a significant amount or variety of cultural remains. Each type of artifact was assigned a value of one point. If four types of artifacts were present, a value of four points was assigned.

Variable 9: Quantity of Surface Artifacts

Quantity as well as variety of artifacts is also apt to indicate the complexity and perhaps the significance of a deposit. Sites with large amounts of specimens on the surface usually yield a much larger body of information than those with few observable specimens. Quantification for this category was based on the number of artifacts. If five specimens were present, five points were assigned. Cores and flakes were not included in this category, since detailed surface sampling (beyond the scope of this work) would be needed to obtain meaningful data.

Variable 10: Degree of Disturbance to the Deposit

The integrity of the site was the last variable considered. Many of the sites had been plowed, built on, dug into, or in some other way partially altered. Five site conditions were noted. Those with no significant degree of disturbance were given five points; those slightly altered were accorded four points; moderate damage resulted in a value of three points; if extensively affected only one point was awarded; and those cultural resources rated as totally destroyed received no points. Eighty-five of the prehistoric sites were disturbed to one degree or another.

Based on the variables described above, sites were ranked from one to 25 (Table 29). In several instances, one or more sites had the same number of points. These ties tended to occur most frequently among sites ranking between 14 and 25, because of the fewer attributes on which to base a determination of significance. It was assumed that in these cases, all sites with the same point value were essentially equivalent in degree of significance. The ranking exhibited in Table 29 clearly identifies those sites that are most significant on the basis of the ten variables, while at the same time indicating a large number of cultural resources which probably would not qualify for the National Register if evaluated individually. The inclusion of many of these latter sites within the boundaries of the proposed National Register District insures that a representative sample of all cultural resources would receive attention if the the Tehama Lake portion of the project were constructed.

Proposed National Register District

South Fork Cottonwood Creek and Dry Creek

This proposed district includes 73 (82%) of the 89 prehistoric sites: 54 (60.7%) of the middens, six (23%) of the lithic scatters, all of the three locations known to have human remains, and 18 (87%) of the 21 deposits with house pits (Table 26). Only 7.4% (3,620M^3) of the 48,961M^3 of midden deposit occurs outside the proposed district. House pits represent 79.4% (81) of the total number (102) within the project area.

As can be seen, this proposed prehistoric National Register District includes a representative sample of every type of site identified within the project boundaries. The lack of specific quarry sites is not surprising, as the presence of lithic debris in the stream bed and on the adjacent terraces suggests that the river cobbles in Dry Creek were used extensively for tool manufacturing. In addition, the 1982-1983 test excavations at six sites have clearly shown that water-washed cobbles were obtained from the stream channel adjacent to the sites and manufactured into tools at those locations. The presence of thousands of pieces of chipped stone at CA-TEH-1264 and elsewhere in the project area indicates that the 26 lithic scatters constitute an important part of the chipped stone industry at Tehama Lake. Their presence represents part of the resource procurement pattern within the South Fork Cottonwood and Dry Creek area, and must be considered in any investigation of its prehistory.

An added dimension of this proposed district is the presence of a large number of isolated artifact locations (Table 30). The district boundary was drawn to include as many artifact locations as possible. Several large cores and core tools were found on the flat ridges and in the drainages in this area. In recent years, Clewett and Sundahl (1982b), Clewett, Teach, and Spencer (1982), Offermann and Orlins (1982), and the 1981 Dutch Gulch Lake Survey have yielded large core tool artifacts. Those found scattered around on ridge tops and minor drainages, away from the prehistoric campsites, apparently represent some type of specialized procurement activity which needs to be protected and/or investigated.

The sites contained within this proposed district may represent a peripheral area to the heartland of the Bald Hills Wintu. Any attempt to understand the prehistory of this group, and any people who came before them, would be severely limited without information from the sites within this proposed district. The large number of sites clearly indicates a significant cluster of prehistoric cultural resources which should be protected or mitigated, should that become necessary.

Prehistoric Sites Outside the Proposed National Register District Not Significant Enough to be Nominated Individually

Only nine Native American cultural resources occur in this category. All but one of these sites ranked 15th or lower (Table 27). Six are lithic scatters, and the three with middens have lithic scatters in association. None of these sites warrants consideration on an individual basis; and even if grouped together, they would possess little significance. If CA-TEH-1273 is to be affected by the Bowman Road relocation, it should be avoided if possible, or mitigated if necessary.

Prehistoric Sites Inside the Proposed National Register District Not Significant Enough to be Nominated

The seven sites in this category ranged in rank from nine to 22. All contained small midden deposits, and CA-TEH-1218, -1251 and -1255 had associated lithic scatters. Only CA-TEH-1230 had any depth to the midden (30 cm), and it was virtually destroyed in 1982 during agricultural land clearing. The middens at the other six sites were leveled, and have little or no integrity.

Historic Sites

The 1982 archeological survey of the Tehama Lake project area located 37 new historic sites, and rerecorded four. The Farquhar School site was not rerecorded, thus 42 historic sites are now known. Most of the sites represent the remains of homesteading/farming/ranching occupations. One townsite, one school, one possible mining camp, and five burial/cemetery locations were also recorded. The sites cover an occupation time span of over one hundred years, from the 1870s to the 1980s; most date from the twentieth century, no earlier than the 1920s. Should the Tehama Dam be built, burials at CA-TEH-1223/H, -1250H, -1303H and -1357H will have to be relocated. These sites will not be discussed further here, as they fall under a different set of procedures. Burial site CA-TEH-840H is located above the currently listed gross pool. If water levels change, this site will have to be re-evaluated for inundation impact. One of the standing structures at CA-TEH-1258/H, a small hand-hewn cabin/shed, may be eligible for nomination to the National Register of Historic Places, pending final analysis by the consulting architectural historian. None of the remaining sites was judged eligible for nomination (Table 37).

The determination of non-eligibility for Tehama historic sites was based on three main criteria: 1) site integrity; 2) level of site significance; and 3) presence of and potential for archival and oral historical information. Sites were not ranked according to the criteria used in the evaluation of historic sites in the Dutch Gulch Lake project area (Johnson and Theodoratus 1984a). In the case of Dutch Gulch, it was necessary to establish a set of criteria for ranking the large number of sites in order to make determinations of significance and management decisions. The much smaller number of Tehama historic sites and, importantly, their low integrity, contributed to the decision to forego the Dutch Gulch ranking procedures in evaluating significance.

Site Integrity

The integrity of most of the Tehama historic sites is extremely low. With one exception, only burial or cemetery locations received an integrity rating of four or five (very good to excellent). The well at CA-TEH-1305H received a rating of four. One site received a three (good), and five sites received a two (fair). Twenty-eight sites received ratings of one (poor), and four sites received a zero (destroyed). The reason for the sites' poor condition is largely due to twentieth century patterns of land use, especially within the last twenty years.

The Tehama land was never densely occupied. Its earliest uses were by a transient population of trappers, prospectors, and travelers passing through the area to reach other destinations. During the settlement period, the study area was on the periphery of the mining zone farther to the north, and was ultimately used for farming and ranching. Unlike Dutch Gulch, Tehama did not contain gold bearing deposits, nor was twentieth century dredging in evidence; however, modern land use has modified the landscape and damaged many of the historic site resources. In particular, results of tree cutting, brush clearing, and bulldozing are seen throughout the project area. Also, livestock roam much of the land during the winter season. While these activities have caused extensive damage to cultural resources, the role played by earlier residents in the salvage and re-use of old materials should not be overlooked. At least one building from the area has been moved into the town of Cottonwood (house from CA-TEH-1279H), while another, the old Rosewood School, was moved to a different location within the project area (J. Hencratt, Personal Communication 1984). Other structures, or their materials, have undoubtedly been re-used in many ways. The sites in the project area reflect these uses and their accompanying modification of the landscape. While many sites are in parcels occupied or at least owned by early settlers, other early homestead locations show no trace of that habitation. The remaining sites apparently lack not only integrity, but also the potential for providing further information from additional archeological research.

Level of Site Significance

Even if the Tehama historic sites had retained greater degrees of integrity, it is doubtful that they would be determined eligible for the National Register of Historic Places, due to their lack of significance on more than local or, at best, regional level. Furthermore, the kinds of sites found in the project area are typical of those found and documented elsewhere.

The principal homesteading period (1880-1920) is well documented, both locally and regionally. The features associated with homesteads are few, and those that exist are similar to others found in northern California. Of the five standing structures recorded for Tehama, four definitely do not warrant nomination to the National Register. The general paucity of remains and construction materials attests to the short occupation span and lack of substance in the structures. Many of the homesteads may have been occupied only long enough to secure the land, then abandoned and incorporated into large landholdings such as the Diamond Ranch.

Ranching activities from the 1920s on are typical of other locations in northern California, and are covered in detail in local histories and newspapers, diaries, museums, government records and other documents. Many individuals who can describe these activities in detail are still living, and many local historical societies are recording this type of data.

In addition, as a result of the cultural resource survey of the Dutch Gulch Lake area, two sites have been recommended for nomination to the National Register: the Miller/Ward house (CA-SHA-1332H) and buildings at the old town of Gas Point. These sites are representative of two major types of occupation, not only in the

C-074833

Tehama and Dutch Gulch areas, but in much of northern California as well. The integrity of both of these far surpasses any of the Tehama sites (with the exception of the burial locations). Boundaries between the two dam construction projects are in some ways arbitrary, and individuals consulted on the Tehama study remember the town of Gas Point as well as do people in the Dutch Gulch area. All would benefit from the preservation of these two loci of historic occupation.

Finally, it has been demonstrated that archival and oral historical resources do exist for the project area. The potential for meaningful information gain within these realms of inquiry is much higher than it is for archeology; so if adequate research is conducted in these areas, little could be added through extensive archeological research.

The decision not to recommend sites for inclusion in the National Register of Historic Places is never easily nor lightly made. The fact that some sites may have only local significance is nonetheless an important quality, as local residents should benefit from our studies. Likewise, the fact that many sites date from the twentieth century should not necessarily mean they are unworthy of study. Ideally, all sites are or should be considered significant. However, given the current milieu in which the preservationist must operate, management decisions and choices must be made. The fact that the Tehama historic sites are not considered eligible for the National Register of Historic Places does not imply that they are considered unimportant or that the area as a whole is insignificant to the history and development of the northern Sacramento valley. Rather, the quality of the historical archeological resources being extremely low, questions on the history of the Tehama area may be more profitably addressed through other sources.

Evaluation of Significance: Historical Resources

Chapter 7 identified the nature of historical resources and discussed the general context which gives them significance. This section will summarize these findings by specifying particular project area resources which are significant (and thus in need of preservation or mitigation), and why they are significant. First the legal and professional guidelines for dealing with such matters are briefly summarized; then the types of data from the resources are discussed in theoretical terms. Finally, the research/interpretive issue or domain which gives a specific resource its significance is recapitulated in the context of the proposed project's impact to the resource. In Chapter 10, measures are recommended for protecting, preserving, or otherwise eliminating or minimizing potential adverse project effects.

Legal and Professional Guidelines for Historical Resource Management

The guidelines for identifying and dealing with significant historical resources threatened by modern development are grounded in federal law. The 1966 National Historic Preservation Act stipulates that, since "(1) the spirit and direction of the Nation are founded upon and reflected in its historic heritage; (2) the historical and cultural foundations of the Nation should be preserved as a living part of our community life and development in order to give a sense or orientation to the

American people . . ." (P.L. 96-515, section 101b). Subsequent laws, the most important being the criteria for listing on the National Register (36CFR800), have attempted to operationalize these provisions.

According to National Register criteria, sites or features may be included on the Register if they possess "integrity" and: (1) are associated with events or people that ". . . have made significant contribution to the broad patterns of history;" (2) have architectural importance; or (3) contain ". . . information important to prehistory or history." These regulations continue by enumerating types of sites excluded from consideration (except under special conditions), such as those less than 50 years old or those that are purely commemorative.

Under current interpretation of these laws, only physical features (e.g., structures, trails, or archeological remains) qualify for listing on the National Register. It has become increasingly apparent that this narrow interpretation leaves many intangible but highly significant and precious historical resources unprotected. The National Historic Preservation Act, as amended on December 12, 1980, required that the Secretary of the Interior, in cooperation with the American Folklife Center of the Library of Congress, prepare recommendations for "preserving and conserving the intangible elements of our cultural heritage" (P.L. 96-515, Section 502). The final draft of these recommendations has been prepared and is in the process of being formalized into law (American Folklife Center 1983). This document clearly articulates the tremendous significance of those cultural resources which lie beyond tangible historic remains, and recommends measures to insure their preservation.

In identifying and managing historical resources, then, it is necessary to look for resources having "integrity"--which have something to contribute to the understanding or remembrance of our national heritage. It is necessary to consider both the research potential (the potential of the resource to contribute information to the understanding of an important issue); and the interpretive potential (the potential of the resource to help the general public to appreciate their heritage). Furthermore, it is important to consider not only easily visible physical historic resources, but the more elusive and potentially rewarding intangible resources. Only by a broad approach to significance assessment and recommendations is it possible to meet the spirit as well as the minimal letter of the law. Only thus is it possible to insure that the beneficiaries of the cultural resources management process are the American people.

Data Bases

A historical resource potentially can make a contribution to historical research and/or interpretation in one or more of the following ways: 1) it can have archeological research potential; 2) it can have architectural and other forms of visual potential; 3) it can have documentary research potential; and 4) it can have oral history research potential.

The archeological research potential of a historical resource is the information contained in the structure, composition, or distribution of features at a historic site. Properly developed, the archeological research potential of a historic resource can both augment and correct information available in the documentary record.

Archeologists have been able to provide new perspectives on frequently unrecorded and forgotten details of history, such as technological innovations, trade networks, or the pace of acculturation.

The physical and cultural landscape triggers the documentary historian's curiosity. Historians have long recognized the need to empathize with the subjects of their analyses. To understand the personal decisions which made history, it is frequently necessary to see the options as the historical person saw them. For example, the significance of the immigration societies' propaganda campaigns for this "thermal belt" of California takes on new meaning when the historian sees the land as the new recruit must have seen it. The reason some habitation sites were preferred over others also becomes obvious when the physical environment of the area is observed. Once the landscape is altered, many of the questions raised in the course of documentary research will never be answered. Conversely, once the physical stimulus disappears, the researcher may no longer ask the same questions. It is essential, therefore, to research the significant issues raised about an area during the preliminary work phase before the stimulus for that research disappears. A most lamentable "information loss" will result if questions arising from inquiries about the physical landscape are not answered simply because the data base is documentary.

The oral history research potential of project area resources is probably even more dependent on the physical landscape. The study area is well remembered by residents and former residents, and this research effort has found that the oral testimony to the area's history is both rich and varied. The high degree of residential stability and the continuity of land use in the area contribute to this situation. Former residents, descendants of pioneers, and even "newcomers" who have shown interest, are frequently able to describe the original appearance and location of site features, such as cabins, corrals, outbuildings, trash pits, wells, or fences. They also can provide the type of detailed information necessary for a better understanding of economic and social relationships in the area, addressing such topics as the relationship between miners and ranchers, the yearly cycle of economic activities, patterns of wage labor, economic cooperation between residents, and so forth. The quality and potential of these data are outstanding. Oral history consultants not only can help locate and describe historical resources, but they can give facts and impressions of the more easily lost aspects of the past: social activities and the quality of life.

As with the documentary resource base, oral history data are not usually seen as dependent on a physical resource. That is, recollection of the history of an area is not thought to be affected by the physical appearance of the area. However, any researcher who has conducted interviews, and indeed even those laymen who have simply returned to a childhood haunt, are aware of the flood of memories unleashed at the sight of a familiar scene. It is important, therefore, to extract and preserve the information generated in the memories of "old timers" before dramatically altering the landscape.

Research/Interpretive Domains

As demonstrated in Chapter 7, the historic resources of the Tehama Lake project area are associated with events, people, and/or trends which can be grouped under

one general thematic heading: California valley farming and ranching. This research domain will be discussed in light of the potentials of specific historical resources to yield information about or understanding of the domain. This chapter and Chapter 10 discuss which of, and in what way, the project area's resources may contribute information on these issues, and whether or not that contribution is significant relative to the parallel potential of similar resources outside the project area. Here, the focus is on the other potential data bases of historic resources--how they potentially may help understand or interpret the general research domain, and the importance of that contribution with respect to parallel resources outside the project area.

The research/interpretive domain exemplified by the area's historic resources is the history of California valley farming and ranching. While this domain can also be divided into sub-themes reflecting the area's changing agricultural orientation through time, it is best considered as a whole, with the cause and effect of changes in orientation being a major research issue. Certainly the area's historic resources could be used to investigate a number of relevant agricultural-history related themes. Many of these (such as the history of the impact of railroads--and, later, the automobile--on agriculture and the agriculturalist's life) have been successfully dealt with elsewhere. Perhaps most important in terms of project-specific uniqueness is the theme of the marginal farmers' experience. Historians, for example, have investigated the nature, characteristics, and fate of the small farmer who tried to survive by farming 160 acres on the Great Plains. The experience of the settlers in the Tehama Lake vicinity needs to be interpreted in a similar perspective. Why did people settle here? How did they survive? Why did they leave? What explains the success of some and the failure of others? In short, what is their significance to America's cultural history, and how can their experience help give direction and meaning to contemporary people? Some of the answers to these questions are given by the findings presented in Chapter 7. But this preliminary research has only scratched the surface of a deep and meaningful theme of American history. Marginal California valley farmers and ranchers can best be considered as a nearly extinct "folklife." People still live who can provide insight and information on these issues. Before the physical resources are destroyed which provide the stimulus to related questions and answers, this research potential should be developed. In addition, some of the historic resources of the project area visually depict the theme, and should be preserved for their interpretive value. Specific recommendations for dealing with these and other potentially significant resources are presented in Chapter 10.

TABLE 26

PROPOSED PREHISTORIC NATIONAL REGISTER DISTRICT
ON SOUTH FORK COTTONWOOD CREEK AND DRY CREEK

STATE TRINOMIAL	SITE TYPE	DRAINAGE	SQUARE METERS	DEPTH (M)	HOUSE PITS	ARTIFACTS	INTEGRITY	POINTS ASSIGNED	RANK
CA-TEH-									
- 384	M	SC,DC	21,250	-*		FL,CO	2	10	19
- 386	M	SC	2,500	.7		FL,CO	3	10	19
- 387,A	M	SC,	660	.5	8?	P,Mt,GB	2	31	2
B	M	SC	10,000	.8		FL,CO,B	0		**
- 388	M	SC	500	.6		FL,CO	1	6	23
- 837/H,A	M,LS	SFCC	5,175	.27		FL,CO	3	14	13
B	M,LS	SFCC	1,800	.30		HM	3		
- 838,A	M,LS	SFCC	5,000	.8		FL,CO	3	16	9
B	LS	SFCC	2,450	-		FL,CO	3		
-1196,A	M	DC	1,430	.4		P,FL,CO	4	44.5	1
B	M		1,276	.5	1	FL,CO	5		
C	M		2,700	.7	14	FL,CO	5		
D	M		10,440	1.0		FL,CO	3		
-1197	M,LS	DC	900	.8	1	P,FL,CO	5	22	4
-1198	M	DC	216	.4		FL,CO,HM/Mt	5	13	15
-1199,A	M	DC	660	.3		3P,FL,CO	4	13	15
B	M,LS		1,375	.25		FL,CO	4		
-1200	M,LS	DC	950	.5		FL,CO	2	11	18
-1201,A	M	DC	880	1.2	11	FL,CO	2	14.5	12
B	M		324	.5	3	FL,CO	3		
-1202/H	M,LS	DC	240	.05	6	P,FL,CO	4	15	11
-1203,A	M	DC	1,088	.9		P,FL,CO	2	13.5	14
B	M,LS		144	.7		FL,CO	1		
C	M,LS		342	.4		FL,CO	4		
-1204	M,LS	DC	528	.46	1	P,FL,CO	2	12	17
-1205,A	M	DC	1,500	.36	3	FL,CO	2	12	17
B	LS		450	-		FL,CO	2		
C	M		3,000	.46		FL,CO	2		
D	M		100	.1		FL,CO	2		
-1206	LS	DC	10,000	-		FL,CO	1	9	20
-1207	M,LS	DC	1,280	.5		FL,CO	1	9	20
-1208	M,LS	DC	528	.35		P,FL,CO	4	13	15
-1209,A	M,LS	DC	1,008	.3	4	HM,FL,CO	4	15.5	10
B	M,LS		840	.36	7	FL,CO	5		
-1210,A	M,LS	DC	943	.3	3	FL,CO	2	12.5	16
B	M,LS		120	.3	5	FL,CO	3		
-1211,A	M,LS	DC	1,980	1.0	11	2P,HM,FL,CO	3	26.75	3
B	M,LS		252	.3		FL,CO	2		
C	M,LS		812	.3		FL,CO	3		
D	M,LS		576	.3	1	P,HM,FL,CO	3		
-1212	M,LS	CC	784	.35		P,FL,CO	2	11	18
-1213	M,LS	CC	210	.35		HM,FL,CO	2	11	18
-1214	LS	UD	240	-		FL,CO	2	10	19
-1215	LS	DC	2,100	-		FL,CO	2	10	19

C-074838

Table 26, Proposed Prehistoric National Register . . . (continued)

STATE TRINOMIAL	SITE TYPE	DRAINAGE	SQUARE METERS	DEPTH (M)	HOUSE PITS	ARTIFACTS	INTEGRITY	POINTS ASSIGNED	RANK
-1216	LS	DC,LG	38,250	-		FL,CO	2	10	19
-1217	M,LS	DC	1,950	.5		FL,CO,Pt	3	14	13
-1219	CS	SFCC	652,000	-		UC,CO	3	10	19
-1220	M,LS	DC	3,000	.5		Pt,FL,CO	1	13	15
-1222	M,LS	DC	325	.35		FL,CO	2	9	20
-1223/H	M,LS	DC	6,600	.28		3P,HM,M,FL,CO	3	20	5
-1224	M,LS	DC	306	.2		P,FL,CO	4	13	15
-1225	LS	DC	5,250	-		FL,CO	1	9	20
-1226	LS	DC	1,980	-	1?	FL,CO	3	12	17
-1227/H,A	M,LS	DC	1,175	.75	2	P,HM,M,FL	3	18	7
B	LS		400	-		FL,CO	3		
-1228,A	HP	DC	150	-	2	Pistol	4	13	15
B	LS		365	-		FL	4		
-1229,A	M	DC	256	.2		FL,CO	2	9	20
B	LS		1,170	-		CO	2		
-1231	M	DC	774	.4		FL,CO	3	7	22
-1232	M	SC	2,400	1.5		HM,FL,CO	1	14	13
-1233	M	SC	1,520	.65		FL,CO	1	7	22
-1234	M	SC	900	.3		P,FL,CO	1	7	22
-1235	LS	SC	580	.1		FL,CO	2	11	18
-1236/H	M,LS	LG	391	.1		FL,CO	1	8	21
-1237	CS	LG	520,000	-		HM,FL,UC	3	13	15
-1238	LS	LG	12,200	-		P,HM,FL,CO	3	15	11
-1239	CS	LG	244,000	-		FL,CO	3	11	18
-1240	CS	LG	105,000	-		FL,CO,UC	3	11	18
-1241	LS	LG	2,254	-		FL,CO	3	11	18
-1242	CS	LG	232,000	-		FL,CO,UC	3	11	18
-1243	CS	LG	660,000	-		CO,UC	3	11	18
-1244,A	M	LG	1,200	.15		FL	2	5.5	24
B	M		25	.15		FL	1		
-1245,A	M	SFCC	2,772	.24		Pt,FL	4	15.5	10
B	M		500	.16		P,HM,CO	3		
-1246/H,A	M	SFCC	750	.25	3	FL,CO	4	12.66	16
B	M		594	-	3	FL	4		
C	M		840	.35		HM,FL,CO	3		
-1247,A	M,LS	SFCC	2,240	.53		HM,FL,CO	1	12	17
B	LS		200	-		FL	1		
-1250/H,A	M	SFCC	1,200	.3		FL,CO	4	12.5	16
-1252,A	M	SFCC	3,025	.1		2HM,2M,FL,CO	2	15	11
B	LS		340	-		2M,Mt,FL	2		
-1253,A	M,LS	SFCC	450	.7	1	2P,FL,CO	2	14	13
B	M,LS		700	.6		P,FL,CO	2		
-1254	M,LS	SFCC	1,012	.45		3Pt,FL,CO	2	13	15
-1256	LS	SFCC	792	-		FL	3	13	15
-1257,A	M	SFCC	1,250	.3		Pt,FL,CO	3	9	20
B	M		400	.3		FL	3		
-1258/H	M	SFCC	540	.32		P,FL,CO	1	7	22
-1259,A	M,LS	SFCC	1,680	.3		2P,FL,CO	3	14	13

Table 26, Proposed Prehistoric National Register . . . (continued)

STATE TRINOMIAL	SITE TYPE	DRAINAGE	SQUARE METERS	DEPTH (M)	HOUSE-PITS	ARTIFACTS	INTEGRITY	POINTS ASSIGNED	RANK
B	M		1,265	.2		FL,UC,CO	3		
C	LS		800	-		CO	3		
-1260,A	M,LS	SFCC	819	.72		P,FL,CO	2	12.5	16
B	LS		1,519	-		FL	2		
C	M,LS		250	.3		FL,CO	3		
-1261,A	M	SFCC	900	.3		FL,CO	1	5	25
B	M		252	.3		FL	1		
-1262/H	M,LS	SFCC	1,200	1.0		P,FL,CO	2	14	13
-1263	M,LS	SFCC	550	.4	1	FL,CO	4	12	17
-1264	M	SFCC	880	.5		FL,CO	3	8	21
-1265	LS	SFCC	1,200	-		FL,CO,HM	1	11	18
-1266,A	M	UD	7,200	.82		FL,CO	2	17	8
B	LS		2,400	-		FL,CO	2		
C	LS		600	-		FL,CO	2		
-1267	M	SFCC	320	.1	3	FL,CO	4	9	20
-1268	M,LS	SFCC	4,320	.21		FL,CO	1	8	21
-1269	LS	SFCC	1,276	-		P,FL,CO	2	12	17

TOTAL: 73

KEY:

SITE TYPE:

M = Midden
LS = Lithic Scatter
CS = Core Scatter

DRAINAGE:

SFCC = South Fork Cottonwood Creek
DC = Dry Creek
LG = Long Gulch
UD = Unnamed Drainage
SC = Salt Creek

ARTIFACTS:

FL = Flake
CO = Core
HM = Hopper Mortar
Mt = Metate
Pt = Projectile Point
P = Pestle
M = Mano
UC = Unifacial Core

INTEGRITY:

5 = Excellent
4 = Very Good
3 = Good
2 = Fair
1 = Poor

TABLE 27

PREHISTORIC SITES NOT NOMINATED
OUTSIDE PROPOSED NATIONAL REGISTER DISTRICT

STATE TRINOMIAL	SITE TYPE	DRAIN-AGE	AREA (M2)	DEPTH (CM)	ARTIFACTS	INTEGRITY	POINTS ASSIGNED	RANK
Inside Proposed District								
CA-TEH-								
-1218	M,LS	DC	1000	*	FL,CO	1	8	21
-1221	M	DC	3000	*	FL,CO,P	1	7	22
-1248,A	M	SFCC	1100	*	2P,HM,M	1	16	9
B	M	SFCC	500	*	Mt,Pt,FL,CO	1	16	9
-1249	M	SFCC	1296	*	2Pt,FL,CO	1	8	21
-1250	M	DC	774	.4	FL,CO	0	7	22
-1251,A	M	UD	900	*	FL,CO	1	13	15
B	M,LS	UD	1200	*	2P,Pt	1	13	15
-1255,A	M,LS	SFCC	3200	*	2P,FL,CO	2	16	9
Outside Proposed District								
CA-TEH-								
-1270	LS	SFCC	37720	-	FL,CO	2	10	19
-1271	LS	SFCC	10050	-	FL,CL	1	9	20
-1272	LS	SFCC	2772	-	P,FL,CO	1	11	18
-1273,A	M,LS	SFCC	480	.30	4P,HM,Mt	2	19	6
B	M,LS	SFCC	3000	.30	FL,CO	2	19	6
-1274	LS	PC	1426	-	FL,CO	4	12	17
-1275	LS	PC	1617	-	P,FL,CO	3	13	15
-1276	LS	PC	1860	-	FL,CO	3	11	18
-1277	M,LS	PC	.20	.20	FL,CO	3	10	19
-1278	M,LS	PC	756	.25	HM,Mt,FL,CO	2	13	15

TOTALS: 16 Sites

5 Middens
6 Middens w/ Lithic Scatters
6 Lithic Scatters

3 DC
8 SFCC
5 PC
1 UD

KEY:

SITE TYPE:
M = Midden
LS = Lithic Scatter

DRAINAGE:
SFCC = South Fork Cottonwood Creek
DC = Dry Creek
PC = Pine Creek
UD = Unnamed Drainage

ARTIFACTS:
FL = Flake
CO = Core
HM = Hopper Mortar
Mt = Metate
Pt = Projectile Point
P = Pestle

INTEGRITY:
5 = Excellent
4 = Very Good
3 = Good
2 = Fair
1 = Poor
0 = Destroyed

C-074841

TABLE 28

RANKING OF PREHISTORIC SITES BY VARIABLES

STATE TRINOMIAL	VARIABLES 1	2	3	4	5	6	7	8	9	10	POINTS ASSIGNED
CA-TEH											
- 384					6			2		2	10
- 386	3	2						2		3	10
- 387	11	2	3			5	1	6	1	2	31
- 388	1	2						2		1	6
- 837/H	3	1			3			3	1	3	14
- 838	6	2			3			2		3	16
-1196	18	3	5			5	3	3	1	4.5	44.5
-1197	1	2	1		3	5	1	3	1	5	22
-1198	1	1						4	2	5	13
-1199	1	1			3			3	1	4	13
-1200	1	2	1		3			2		2	11
-1201	2	3	5					2		2.5	14.5
-1202/H	1	1	2		3			3	1	4	15
-1203	2	2			3			3	1	2.5	13.5
-1204	1	1	1		3			3	1	2	12
-1205	3	1	1		3			2		2	12
-1206					6			2		1	9
-1207	1	2			3			2		1	9
-1208	1	1			3			3	1	4	13
-1209	1	1	4		3			1	1	4.5	15.5
-1210	1	1	3		3			2		2.5	12.5
-1211	4	3	4		3		2	5	3	2.75	26.75
-1212	1	1			3			3	1	2	11
-1213	1	1			3			3	1	2	11
-1214					6			2		2	10
-1215					6			2		2	10
-1216					6			2		2	10
-1217	2	2			3			3	1	3	14
-1218	1	1			3			2		1	8
-1219					6			1		3	10
-1220	3	2			3			3	1	1	13
-1221	1	1						3	1	1	7
-1222	1	1			3			2		2	9
-1223/H	3	1			3			5	5	3	20
-1224	1	1			3			3	1	4	13
-1225					6			2		1	9
-1226			1		6			2		3	12

C-074842

Table 28, Ranking of Prehistoric Sites by Variables (continued)

STATE TRINOMIAL	VARIABLES 1	2	3	4	5	6	7	8	9	10	POINTS ASSIGNED
-1227/H	2	2	1		3			5	3	2	18
-1228			1		6			2		4	13
-1229	1	1			3			2		2	9
-1230	2	1						3	1	0	7
-1231	1	1						2		3	7
-1232	5	4					3	3	1	1	14
-1233	2	2						2		1	7
-1234	1	1						3	1	1	7
-1235		1			6			2		2	11
-1236/H	1	1			3			2		1	8
-1237					6			3	1	3	13
-1238					6			4	2	3	15
-1239					6			2		3	11
-1240					6			2		3	11
-1241					6			2		3	11
-1242					6			2		3	11
-1243					6			2		3	11
-1244	1	1						2		1.5	5.5
-1245	3	1						5	3	3.5	15.5
-1246/H	2	1	2					3	1	3.66	12.66
-1247	2	2			3			3	1	1	12
-1248	1	1						7	6	1	16
-1249	1	1						3	2	1	8
-1250/H	2	1			3			3	1	2.5	12.5
-1251	1	1			3			4	3	1	13
-1252	1	1			3			4	4	2	15
-1253	1	2	1		3			3	2	2	14
-1254	1	1			3			3	3	2	13
-1255	2	1			3			4	4	2	16
-1256	2	1			6			1		3	13
-1257	1	1						3	1	3	9
-1258/H	1	1						3	1	1	7
-1259	2	1			3			3	2	3	14
-1260	1	2			3			3	1	2.5	12.5
-1261	1	1						2		1	5
-1262/H	2	3			3			3	1	2	14
-1263	1	1	1		3			2		4	12
-1264	1	2						2		3	8
-1265					6			3	1	1	11
-1266	8	2			3			2		2	17
-1267	1	1	1					2		4	9
-1268	1	1			q3			2		1	8
-1269					6			3	1	2	12

Table 28, Ranking of Prehistoric Sites by Variables (continued)

STATE TRINOMIAL	VARIABLES 1	2	3	4	5	6	7	8	9	10	POINTS ASSIGNED
-1270					6			2		2	10
-1271					6			2		1	9
-1272					6			3	1	1	11
-1273	2	1			3			5	6	2	19
-1274					6			2		4	12
-1275					6			3	1	3	13
-1276					6			2		3	11
-1277	1	1			3			2		3	10
-1278	1	1			3			4	2	2	13

TOTAL: 89 Sites

KEY:

VARIABLES:

1 = Size
2 = Depth
3 = Number of Housepits
4 = Presence of Large Structures
5 = Associated Lithic Scatters
6 = Human Remains
7 = Quantity of Miscellaneous Features
8 = Variety of Artifacts
9 = Quantity of Artifacts
10 = Degree of Disturbance

C-074844

TABLE 29

RANKING OF PREHISTORIC SITES WITHIN PROJECT AREA

RANK	POINTS ASSIGNED	PROPOSED NATIONAL REGISTER DISTRICT	NOT PROPOSED FOR INCLUSION IN DISTRICT	TOTAL
1	44.5	1196		1
2	31	387		1
3	26.75	1211		1
4	22	1197		1
5	20	1223/H		1
6	19		1273	1
7	18	1227/H		1
8	17	1266		1
9	16	838	1248,1255	3
10	15.5	1209,1245		2
11	15	1202/H,1238,1252		3
12	14.5	1201		1
13	14	837/H,1217,1232,1253, 1259,1262/H		6
14	13.5	1203		1
15	13	1198,1199,1208,1220, 1224,1228,1237,1254 1256	1251,1275,1278	12
16	12.5	1210,1246/H,1250/H,1260		4
17	12	1204,1205,1226,1247, 1263,1269	1274	7
18	11	1200,1212,1213,1235 1239,1240,1241,1242, 1243,1265	1272,1276	12
19	10	384,386,1214,1215, 1216,1219	1270,1277	8
20	9	1206,1207,1222,1225, 1229,1257,1267	1271	8
21	8	1236/H,1264,1268	1218,1249	5
22	7	1231,1233,1234,1258/H	1221,1230	6
23	6	388		1
24	5.5	1244		1
25	5	1261		1
TOTALS:		73	16	89

TABLE 30

ISOLATED ARTIFACTS ASSOCIATED WITH THE PROPOSED
PREHISTORIC NATIONAL REGISTER DISTRICT

ARTIFACT NUMBER	DRAINAGE	ARTIFACT TYPES
CSUS-116	LG	Unifacial Core, Cobble Core
-121	UD	Unifacial Core
-126	LG	4 Unifacial Cores
-127	UD	2 Flakes, Unifacial Core
-128	CC	Flake, Unifacial Core
-129	UD	Flake, 3 Unifacial Cores
-134	UD	3 Unifacial Cores
-136	LG	Flake, 2 Cores, Unifacial Core
-139	UD	3 Unifacial Cores
-141	UD	Unifacial Core
-142	LG	3 Unifacial Cores
-153	UD	7 Unifacial Cores
-154	UD/LG	Unifacial Core
-156	UD	Unifacial Core
-161	UD	Unifacial Core
-168	UD	3 Unifacial Core
-169	UD/LG	Flake, Core, 3 Unifacial Cores
-170	LG	Unifacial Core
-175	UD	Core, 7 Unifacial Cores
-178	SFCC	Unifacial Core
-182	UD/SFCC	Flake, Core, 18 Unifacial Cores
-184	UD/SFCC	Unifacial Core
-185	UD	7 Unifacial Cores
-187	SFCC	2 Unifacial Cores
-192	UD	5 Unifacial Cores
-193	UD	14 Unifacial Cores
-221	DC	2 Flakes, 2 Cores, 4 Unifacial Cores
-236	UD	Core, 2 Unifacial Cores
-295	UD	Flake, 2 Unifacial Cores
-298	UD/SFCC	Unifacial Core
-304	SFCC	2 Flakes, 9 Unifacial Cores
-317	UD	4 Unifacial Cores

TOTALS: 32 Isolated Artifact Groupings
116 Unifacial Cobble Cores
9 Miscellaneous Cobble Cores
12 Miscellaneous Flakes

C-074846

TABLE 31

HISTORIC SITES NOT NOMINATED
TO THE NATIONAL REGISTER OF HISTORIC PLACES

CA-TEH- 385H	CA-TEH-1258/H	CA-TEH-1287H	CA-TEH-1297H
- 837/H	-1262/H	-1288H	-1298H
- 839H	-1279H	-1289H	-1299H
- 840H	-1280H	-1290H	-1300H
- 841H	-1281H	-1291H	-1301H
-1202/H	-1282H	-1292H	-1302H
-1223/H	-1283H	-1293H	-1303H
-1227/H	-1284H	-1294H	-1304H
-1236/H	-1285H	-1295H	-1305H
-1246/H	-1286H	-1296H	-1306H
-1250/H			-1357H

TOTAL: 42 Sites

TABLE 32

EVALUATION OF PREHISTORIC SITES

	ABOVE GROSS POOL	FLUCTU-ATION ZONE	MAIN POOL	MINIMUM POOL	DOWNSTREAM FROM DAM SITE	DAM AXIS	BOWMAN ROAD REALIGNMENT	TOTAL
Proposed N.R. District	13	29	18	12	1	1	0	74
Outside proposed N.R. District	2	2	2	0	4	0	5	15
TOTAL:	15	31	20	12	5	1	5	89
Percentage	16.85%	34.83%	22.47%	13.48%	5.62%	1.12%	5.62%	100%

CHAPTER 10

MANAGEMENT RECOMMENDATIONS

The Tehama Lake project area contains numerous anthropological and historical resources. The first year's investigation (as described in preceding chapters) revealed that there are many prehistoric sites worthy of further investigation. There is potential for additional oral historical and archival research as well. Integrating the research on these facets of the culture history of the Tehama Lake area is challenging, and will yield critical scientific information and provide interesting materials for public interpretation. The purpose of this chapter is to present a strategy to maximize the scientific and public benefits flowing from research in the project area within the financial and time limits inherent in any undertaking of this scope.

Anthropologists and historians face difficult decisions when directed to make recommendations for the management of cultural resources in a project area such as Tehama Lake. The assumptions underlying these decisions are simple, yet far reaching: 1) a portion of the resources will be destroyed by the project; 2) the environmental and social context of the resources will be altered markedly--possibly forever--resulting in a loss of historical and ethnographic data; and 3) the resources will be subjected to increased modification and vandalism by the public. It is the responsibility of the Corps of Engineers and selected social scientists to mitigate these conditions through an organized program of data collection, preservation and interpretation.

Research and related activities must be carried out within demanding restrictions. Funds are now usually limited by the Moss-Bennett Act (P.L. 93-291) to up to one percent of the total cost of the project. Activities must also be completed in concert with the overall project timetable. Time and money are therefore added to scientific and public value when management decisions are made. The recommendations presented below are based on a very specific set of conditions.

1. Funding: The funding available for cultural resource mitigation of the Cottonwood Creek project will be considerably less than the amount needed to investigate the data potential of all of the identified sites and non-archeological resources. Of the 405 known sites, 283 (69.9%) are in the Dutch Lake area and 122 (30.1%) are in the Tehama Lake area. The quantity, condition, and overall significance of the Tehama Lake resources suggest that only 30 percent--and possibly less--of the funds be allocated there.

2. Status of the Archeological Survey: Only 1351.51 acres, or 6.1 percent of the total 22,000 acres, have not been intensively surveyed. Approximately 72 percent of the unsurveyed area is in seven blocks of land from 120 to 170.21 acres each. The remaining acreage consists of parcels which are most often less than 20 acres in size. Relatively few sites are expected on the land which has not been surveyed.

3. Test Excavations: The 1982-1983 test excavations at CA-TEH-387, -1196, -1197, -1211, -1232, and -1264 have provided valuable information on site constituents, excavation and laboratory procedures, and a variety of other conditions germaine to the development of a viable research program. Had no excavation data been available from the project area, it would have been necessary to rely on surface evidence, test holes, erosion profiles, and data from other sites in the region. All of these techniques have been used in the past with varying degrees of success. Excavations done without an adequate testing program result in time and money wasted on inappropriate methodologies and on sites which do not contain the amount or types of materials expected. Recent investigations at the New Melones, Warm Springs and proposed Dutch Gulch reservoirs clearly illustrate how important initial test excavations are in determining what types of additional research should be attempted.

4. Prehistoric Research Design: A primary goal is the development of hypotheses with site-specific and regional applications. Often researchers devote time and effort to the investigation of a poorly represented or non-existent research domain to the detriment of the overall archeological program. This is not to imply that investigations of questions of broader significance would be inappropriate, but that known cultural resources, rather than a series of hypotheses which may not be applicable to the area, should determine what kind of research is relevant. For example, it was first believed that Kowta's (1975) hypothesized model of settlement before 3500 B.C. may be applicable to the Squaw Creek site north of Shasta Lake, on Pilot Ridge in the Coast Range to the northwest, and at Borax Lake in the Coast Range to the south. This settlement model would probably be of little use at Dutch Gulch, since nothing even close to that antiquity has been located. However, recent excavations at CA-TEH-748, and at CA-TEH-1211 at Tehama Lake, have altered this first impression, suggesting the possibility of some antiquity in these project areas. According to Suzanne Baker (Personal Communication 1984), current research at CA-SHA-192 to the north of Cottonwood Creek (Map 10) revealed artifacts thought to be older than A.D. 1. Thus the potential for older materials must be kept in mind. Still, the majority of the Dutch Gulch and many of the Tehama Lake sites have components which date to the last 1200 years, representing the Bald Hills Wintu and their ancestors. The study of these sites will provide the basis for reconstructing the lifeways of one of the last major Penutian language-speaking groups to settle in northern California. Data from Dutch Gulch and Tehama Lake, and comparative information from Yana sites to the east, will aid in the achievement of this goal. Another profitable line of investigation will be the comparison of Tehama Lake sites with those from Dutch Gulch and other Wintu sites along the Sacramento River, Clear Creek, and elsewhere. This comparison may provide a separation of cultural traits that are specifically Bald Hills from traits of other Wintu groups (See DuBois 1935:28-29). The relationship of the Wintu to the grassland, foothill woodland, and Cottonwood Creek and Sacramento River riparian habitats should be studied in detail. Investigation of the systems of resource acquisition (such as collecting and trade) will provide information on intra- and inter-group similarities and differences. The study will also strengthen our knowledge of the relationships of the groups in the area to each other and to the environments upon which they depended.

5. Historic Archeological Research Design: Though the historical archeological sites at Tehama Lake were considered of low significance (Chapter 9), there remains the responsibility of presenting information to the public. It is expected that ethnohistorical and archival research will be the most successful method of filling out the history of the area. Also desirable would be: 1) preparation of detailed maps of some of the better preserved historic sites, and 2) limited testing at several sites, to determine whether or not buried or undisturbed features are present. These sources of information have the potential to provide an added dimension to public interpretive programs, as well as to confirm the site integrity ratings deduced from surficial evidence.

6. Ethnographic and Historical Research: Continuing efforts should be made to locate and contact anyone of Native American descent who might be knowledgeable about the Tehama Lake area. Individuals other than Native Americans who might also possess information about Indian use of this part of California should also be sought. Historical research has shown that considerable information exists regarding every significant activity occurring within the Tehama Lake area since the 1860s. Historic research will expand the data base for homesteads and other historic sites for which only a small amount of archeological investigation has been recommended.

7. Research Methodology: Whatever methodologies are proposed should be applicable to the sites and materials obtainable from them. Many research proposals suggest that obsidian hydration, X-ray florescence, palynology, human osteology, faunal and floral analysis, carbon dating, and other studies be performed on sites which turn out--after large amounts of money have been allocated--to contain few or none of the materials necessary for such research. A case in point was the attempt to manually auger midden sites in the Dutch Gulch project area (Johnson and Theodoratus 1984a; see also Chapter 3, this report). This process was quickly abandoned because of the rockyness of the middens, and in deference to objections raised by Wintu participants. As a result of this earlier experience, no time was spent at Tehama Lake attempting to hand auger middens with similar constituents. However, the use of power augering equipment has not been tested, and may develop into a rapid and efficient method of data recovery. The use of power augers on sites with similar rock content at Black Butte Lake in 1983 was found to be both rapid and effective (Johnson and Theodoratus 1984b).

Initial test excavations should incorporate a variety of excavation and analytical techniques so their effectiveness can be determined with the least expense. For example, excavations at CA-SHA-290/H and CA-TEH-748 at Dutch Gulch, and CA-TEH-387, -1196, -1197, -1211, -1232 and -1264 at Tehama, included a variety of procedures, resulting in a good repertoire of cost-effective and productive techniques. These are discussed in Chapter 3 and will be fully described in the individual site reports.

Archeologists often hire most of their personnel from their own institutions or firms, and frequently make the mistake of overlooking others with valuable local experience. A "mix" of personnel during recent testing has resulted in a corresponding mix of concepts and field procedures, which will be valuable in the

future. Students, working under the supervision of the principal investigator, have also participated in field and laboratory research. This provides the student with an invaluable learning experience and has helped in the completion of studies that otherwise would not have been possible.

8. Cost: If perishable remains are abundant, the cost per cubic meter for excavation and analysis will be greater. It makes little sense to prepare detailed cost estimates without positive information about what is contained within the sites to be affected by the project. For example, CA-NEV-199 near Truckee, California, contained no animal bone, shell, ash, or human remains. It was therefore unnecessary to include funds for faunal analysis, conchology, or human osteology (Rondeau 1982). At Tehama Lake, excavations at six sites yielded large quantities of complete and broken artifacts, lithic debris, charcoal (including carbonized seeds and nuts), ash features, fire-fractured rock, faunal remains, and lesser amounts of shell. Also present was evidence of large numbers of human burials. Nitrogen, calcium, phosphorous, potassium, carbonate, pH, and soil sieve analyses were conducted, and the cost for the chemicals to process the samples was relatively inexpensive.

The studies at CA-SHA-290/H and CA-TEH-748 at Dutch Gulch and the six Tehama Lake sites indicate that intensive soil sampling will result in a good understanding of which portions of sites will yield relevant information. Experimentation with different excavation and laboratory techniques at both locales to find the procedures and expertise that will provide the most information for the least amount of money will benefit research both here and elsewhere in north central California. With adequate testing, it should be possible to lower the cost of excavation substantially. The sites within the Tehama project area are not as variable in size and constituency as those at Dutch Gulch, so cost of investigation is likely to be quite different in the two areas.

Based on the 1978 fieldwork at Dutch Gulch, it was estimated that CA-SHA-290/H contained a midden volume of 12,425m^3. The size of the site is now thought to exceed 30,600m^3. Likewise, when CA-TEH-748 was recorded in 1978, it was estimated to be only 4,488m^3; after rerecording and test excavations in 1981-82, it was thought to contain as much as 8,268m^3 of deposit. The estimates of the midden volume for all other sites recorded in 1967 (Leonard 1969) and in 1977-78 (Jensen 1978) were at variance with the results obtained in 1981-82. This was also the case at Tehama Lake, where some sites were determined during the test excavations to be larger than recorded earlier.

Based on his 1977-1978 fieldwork, Jensen proposed two alternative strategies for excavation. His cost estimates varied greatly by site and type of study. He suggested that because of differences in significance, many of the sites did not warrant extensive testing. The actual costs of excavating a combined 30 cubic meter sample at CA-TEH-387, -1196, -1197, -1211, -1232, and -1264 proved to be quite variable because of the considerable differences in their matrices. While general inflation and wage scale changes may account for this increase, it is believed that the 1978 estimates were not accurate predictions of costs. Even though 1982 and 1983 testing provided more detailed data, it is

futile to attempt a prediction of the percentage of sites that must be excavated and what total costs will be. Instead, mitigation should proceed in phases, each of which will result in more reliable estimates for each subsequent phase.

9. Effects of the Project on Cultural Resources: The construction and operation of the proposed project is a major factor influencing recommendations. The following concerns must be considered: 1) the number of sites that will be directly affected; 2) which sites will be destroyed and during which part of construction or operation this will occur, and; 3) the amount of testing and excavation that must be done.

Some researchers have insisted that every site should be studied with at least one test unit. This was done on the Warm Springs/Lake Sonoma project, and decisions concerning how much excavation should occur were based on the results of the testing program. It was discovered that some promising sites turned out to contain little useful information, while others appearing to be of little value were much more significant (Baumhoff, Personal Communication 1982). In the New Melones project area, a similar situation occurred. CA-CAL-S347 was thought to have only a shallow surface deposit. However, a two-by-two square meter test unit ended over two meters deep at what turned out to be the oldest site in the project area. Apparently, what had originally been a small, deep mound had subsequently been almost completely covered over by alluvial fill from natural deposition.

The reverse situation proved to be the case at Locus A, CA-TEH-748, in the Dutch Gulch locale. Prior to test excavations in 1982, it was felt that Locus A was the largest and probably most significant of the five deposits. However, during testing it was determined that much of the elevated midden area at Locus A was far shallower than expected, resulting in projected volume figures that were not much different than those calculated for the four remaining loci.

While the testing of every deposit might help identify the importance and clarify the subsurface nature of certain sites, it might also waste scarce resources on sites which might not need mitigation because they are above gross pool or in some portion of the project area where they could be avoided. Management through avoidance at Tehama Lake will affect the 17 percent (21) of the sites above gross pool. Presently no recreation developments or wildlife management areas are planned for the project area.

Recommendations

The next phase of research at Tehama Lake should consist of the following: 1) completion of the archeological survey; 2) additional ethnographic and historical research; 3) test excavations to determine what kinds of field methodologies and laboratory procedures would be best suited to archeological investigation of the cultural resources; and 4) refinement of several hypotheses which would further the long term research goals of the project study.

It is difficult to determine the amount of funds needed to continue searching for potential ethnographic consultants and to complete the historical research.

Additional research of this nature might preclude the necessity to mitigate some of the archeological resources. Historical research, which would concentrate on locating additional consultants who are familiar with events before and just after the turn of the century, could possibly provide data at much lower cost than archeological excavation, in which case the former approach should be taken.

Test excavations should involve sites of different size and composition, located in as many different parts of the reservoir area as possible. Methodological consideration should be given to screening techniques, sampling procedures, availabilty of appropriate analytical techniques, crew size and composition, institutional cooperation, report preparation, dissemination of information, and data preservation. If this type of testing is undertaken at Dutch Gulch Lake prior to additional work at Tehama, then those techniques that have not proved useful can be modified or rejected. There has seldom been a concerted effort from the beginning stages of a project to integrate the above in order to obtain the most effective methods of data gathering, processing and analysis techniques, and dissemination of the results. There are no guidelines applicable to how much methodological experimentation should be attempted. Most investigators would probably suggest that, when the results become repetitive, the procedures should be used if they are successful and rejected if they appear to be of little or no value. A reasonable sum to spend on the final testing phase would be about ten percent of whatever funds eventually become available.

Expected results from this testing would be the identification of any additional sites needing evaluation, and the determination of what field laboratory and personnel combinations would most likely provide maximum information for available funding. The continued development of a detailed regional chronology would be emphasized, and several research questions could be investigated.

Cultural Resources Investigated

It is recommended that those 16 prehistoric and 38 historic sites which lack qualities for nomination to the National Register be eliminated from further consideration (Table 26). In addition, any prehistoric sites above gross pool and in the spillway that are not going to be affected by construction should be removed from initial consideration, except for comparative purposes.

If these recommendations are followed, 67 (or approximatley 55%) of the cultural resources associated with the Tehama Lake project might possibly be removed from further consideration. If only the remaining 55 sites were available for investigation, it would severely limit the range of research that could be done and the type of comparative data available for intepreting the results of the study. It is recommended, therefore, that while the majority of sites above gross pool, and those determined to lack significance, need not be investigated at this time, they should be available for testing if additional data is required to answer specific research questions concerning the cultural resources that will be directly affected by the construction and operation of the reservoir.

In the recently completed "National Reservoir Inundation Study," Lenihan et al. (1981:203-215) discussed the various "zones" in a reservoir, and indicated that sites

above gross pool need not be investigated if the construction and operation of the reservoir will not endanger them. They consider those sites in the fluctuation zone to be most endangered, while below that level many of the sites may survive several decades or more with only moderate alteration. Recent studies at Folsom Lake during the 1977-78 drought showed that midden deposits inundated for 25 years can retain some cultural stratigraphy, including features such as ash deposits and house floors, and bone and shell remains (Foster and Bingham 1978; Foster et al. 1977). Similar conditions were noted at Lake Van Norden in southern California when several inundated archeological sites were tested when the reservoir was drained after an earthquake in the early 1970s.

Many other factors affecting whether or not sites will survive should be considered as mitigation proceeds. For example, at the Camanche Reservoir in Calaveras and Amador counties, the large and important Old Bridge site (CA-CAL-237) was totally destroyed within one year after inundation. It was situated on a low terrace on a major bend in the upper end of the reservoir, where strong water currents were channeled against its location. When the lake was drained to repair a leaking embankment, the site was discovered to be completely eroded.

In addition, Lenihan et al. (1981) assumed that all reservoirs operate in the same manner, with five zones to be considered. While the divisions mentioned (permanent conservation pool; shoreline fluctuation zone; upper floodpool zone; backshore zone; and downstream zone) do occur, the degree of disturbance occurring in each may differ from that proposed by Lenihan. Some reservoirs, such as Camanche, are designed to fluctuate only minimally from year to year, except under such conditions as drought. This means that what Lenihan et al. (1981:209, 212-213) described as the little-affected upper floodpool zone becomes the shoreline fluctuation zone at Camanche Lake. As can be seen, this would radically alter the number of sites affected by the annual changes in shoreline. Dutch Gulch and Tehama lakes may operate quite differently at various times: zones may fluctuate seasonally as well as annually. Any mitigation plan, then, will need to consider carefully where sites are in relation to the project, as well as how the reservoir will be operated. Also, the Lenihan study did not take into consideration the spillway as a management concern. The reservoirs he studied must not have had overflows directed into adjacent drainages, otherwise these would undoubtedly have been considered in the analysis and recommendations.

Ethnographic Recommendations

Most of the recommendations with which the Native American population has been actively involved have to do with the disposition of known and anticipated burials within the area of impact. It has been the general feeling that, in most cases, the solution in such situations would be reburial under the supervision of representatives of the nearest concerned Native American groups; however, locations acceptable for such reburials have not yet been selected. Members of the Wintu Educational and Cultural Council have indicated in the past that individual decisions would need to be made according to specific situations. Representatives of the Nomlaki Wintun have also expressed an interest in seeing that burials are properly cared for. The lack of any agreed-upon procedures necessitates continuous liaison

with representatives of the Bald Hills Wintu and the Nomlaki at Paskenta and Grindstone. It is not anticipated at this time that any more detailed guidelines can be developed to aid decision-making in the field.

There is much community interest in past and ongoing Native American traditions on the part of both Indians and non-Indians. This level of concern demands that a summary of Native American culture, as practiced in the general area, be presented at the dam site. Community participation in the development and maintenance of such a presentation should be encouraged. Such participation might take the form of a program interpreting Native American culture for visitors. Interested individuals might wish to become involved in ongoing oral history projects specific to Indian life in the project area. Several consultants in the Bald Hills, Paskenta and Grindstone areas, who are descendants of early local Native Americans, have led long, interesting lives which, if recorded in some detail, would provide valuable insights into the area's history. If public interpretation is proposed for the project, formats might include video tape, slide show demonstrations, and living history, as well as the more traditional signs and display programs.

Further research into census data and ethnographic field notes might yield more information on this little-known area, and it will be profitable to continue to expand primary ethnographic data collection. There may still be persons to contact, including consultants, now residing outside the area. It is critical that on-site research continue through future study phases, since the project will radically alter the landscape. This ethnographic research should be done in a manner that will result in interesting interpretive materials to stimulate public interest in the Native American history of the area.

Historical Recommendations

Recommendations for historical research are divided into two parts: 1) those dealing with non-archeological/architectural resources that are likely to be eligible for the National Register of Historic Places; and 2) those dealing with resources that are not specifically eligible for listing on the National Register under the current interpretation of criteria, but which should be protected or mitigated because of their importance to the "spirit and direction of the Nation." The recommendations listed here are in an order corresponding to that which derived from the discussion of the research/interpretive domains.

The purpose of these recommendations is to insure that the full potential of the historic resources is investigated. The ultimate goal of historical research at the Tehama Lake project is to study and preserve the past for the benefit of the present--and, importantly, for the future. More attention is being given to the less physical components of history by federal regulators and advisors. It is urged that non-traditional historical studies, particularly the recordation of oral history and folklife, be developed. Such studies may result in invaluable data for public interpretation and non-archeological alternatives to historical resource mitigation.

The specific research domains described below consider archeological and other components of significance for the historic resources.

1. The area's historic resources relating to homesteading, ranching and farming should be developed for their oral history and documentary research potential. Prior to physical alteration or destruction of these resources, it is recommended that an oral history of agricultural development in the area be completed. Corresponding documentary research is likewise appropriate. Such research is desirable even if the related archeological resources do not qualify for listing on the National Register.

2. Finally, a general recommendation is in order. In keeping with the spirit of historic preservation laws, it is recommended that the significant findings of the historical research be augmented or repackaged as necessary and made available to the public through publications in professional and lay journals. Similarly, copies of this report could be made available at local libraries and historical societies, so that the detailed findings would be more readily available to the interested public. Since the simple dissemination of knowledge has been used as a form of mitigation, it is recommended that additional methods of information dissemination (e.g., interpretive displays at existing or new centers; video presentation/preservation of the area's history) be explored.

The history of the Tehama Lake area parallels that of much of rural California. Its historic resources embody information and interpretive potential for a better understanding and appreciation of the national heritage. Therefore, it is recommended that those resources with the potential for public enjoyment and appreciation be saved. Where feasible, the information/interpretive potential of other, more elusive resources should be extracted prior to construction. Ideally, the final interpretation of which options to pursue in handling the historic resources should be made in conjunction with mitigation/preservation cost estimates and formalized plans for interpretive presentation at the new reservoir. Then, those options should be selected which provide maximum public benefit for the allotted funds.

Long Range Research Goals

Investigation of the cultural resources in the project area offers the opportunity to explore a number of local and regional research questions. The study's contribution to the understanding of human history, and the interpretation of this knowledge for the public, must be the primary objectives of the cultural resources investigation. The concluding portions of this chapter outline the major research goals for the project area. This section and other portions of this report should serve as a guide to future research.

Chronology

The construction of a detailed and reliable chronology is of paramount importance for the successful completion of any archeological project (Thomas 1974:3-4, 1979). There should be a concerted effort to continue to gather data useful to the refinement of the chronology for the region. Carbonate dating was used in an experimental fashion at Dutch Gulch and Tehama lakes to help establish a relative

sequence of abandonment of prehistoric sites. This method was chosen because it had proved useful in other regions of northern and central California with similar climate and soil conditions. Information pertinent to the chronology was also obtained during the 1982 and 1983 CSUS excavations at two sites at Dutch Gulch and six at Tehama. Cultural chronologies should be extended to the present, and one of the major goals of subsequent archival and historic archeological research should be to interpret the sequence of events that occurred in north central California after the 1820s.

Subsistence Patterns

Based on previous research and the 1982-1983 investigations, it is evident that the Tehama Lake study has the potential to add to our knowledge of prehistoric and historic subsistence patterns in northern California. A substantial portion of the prehistoric archeological record is still present; surface evidence and subsurface testing of six prehistoric sites resulted in a wealth of information. Bone and shell appear to have preserved fairly well for at least the last 2000 years, and faunal remains and burned seeds and nuts have contributed to our knowledge of Native American subsistence. A long-term goal of the research should be to develop field techniques that will lead to the preservation of more archeological remains (such as carbonized seeds) useful in reconstructing prehistoric and historic procurement and food processing activities. Specific research questions include the following:

1. Is the apparent smaller population density at Tehama Lake (compared to Dutch Gulch) related to major differences in environmental resources?

2. Are the large numbers of unifacial cores found on the ridge tops part of a special procurement pattern associated with the use of specific resources? Does the substantial difference in number of specimens between the two reservoir sites represent a difference in subsistence patterns?

3. What is the history of food processing technology in the seed-rich Bald Hills environment at Dutch Gulch compared to the brushy hills in the Tehama area? How do Hokan and later Penutian groups differ in their exploitation and processing of these resources? How does the distribution of manos/metates and mortars/pestles relate to cultural succession in the area?

Settlement Patterns

The presence of Native American sites with house pits indicates that the area is important for the study of prehistoric settlement patterns. Future research in the project area and its immediate vicinity should be directed toward data recovery from these sites to further our knowledge of settlement patterns in this part of California.

1. Do the large core tools found on the ridge tops and on small peripheral drainages away from the main village sites represent some type of special resource acquisition activity of relatively late times, or possibly some type of earlier settlement and/or land use pattern?

2. What traits, ethnographically and prehistorically, distinguish the Wintu and Nomlaki from the Yana, and when does a cultural boundary between the groups first appear in the northern Sacramento Valley? When is a cultural boundary between the Bald Hills Wintu and the Nomlaki Wintun first evident, and is there evidence for a border in the Tehama Lake area?

3. Was the area a population or resource center or was it peripheral? If the latter, what was the relationship between the Tehama Lake area people and the neighboring groups on the Sacramento River, the Balds Hills and the mountains to the west?

4. What factors contributed to differences in population density and settlement complexity?

Social-Political Interaction

Interaction spheres between the Bald Hills Wintu, Nomlaki Wintun, Yana, and Euro-Americans are a productive anthropological research domain in this region. One manifestation of this is the input already generated regarding the movement of the Penutian ancestors into the area, and their displacement of the indigenous Hokan populations (Chapter 5). Beside having relevance to our understanding of the prehistory of the region, it might also provide information regarding factors which lead to and facilitate the maintenance of cultural boundaries and the replacement of one human population by another.

1. What are the dynamics of cultural interaction between Hokan and Penutian groups and, historically, between the Wintu and Nomlaki and Euro-American settlers? What was the nature of conflict, if any, and is there evidence of assimilation or acculturation? Was there an exchange of environmental knowledge between resident and incoming populations? What are the similarities and differences between the Hokan/Wintu/Nomlaki contact and the Wintu/Nomlaki /Euro-American contact?

2. What evidence is there for disruption and/or interaction of Hokan language speaking groups (Shasta, Yana, Pomo, Okwanuchu, Achumawi) and Penutian language speaking groups (Wintu, Nomlaki, Maidu) in north central California?

Economic Exchange Networks (Obsidian)

The presence of obsidian at a substantial number of sites recorded during the 1982 fieldwork shows the potential for effective research on prehistoric exchange systems connected with the procurement and use of this valuable commodity. Earlier studies in California by Jackson (1974) and Earle and Ericson (1977) show the usefulness of obsidian in reconstructing prehistoric trade routes and systems of economic exchange. Hughes' (1983) study of obsidian artifacts in northeastern California, northwestern Nevada, and south central Oregon has established a data base and several lines of research directly pertinent to the prehistory of the Dutch Gulch area. One of the major goals of the Dolores Project was reconstruction of

"Extraregional Relationships" through the study of the distribution of pottery and other artifacts (Breternitz 1983:55-56). In north central California, obsidian distribution can be used in a similar manner and this subject should be vigorously pursued. Hughes (Personal Communication 1983) has recently determined the source for the projectile points at CA-TEH-748 and CA-SHA-290/H, providing additional avenues of research.

1. What is the use pattern of lithic resources? Is there a difference between the uses of locally obtained lithic resources and those obtained through trade or otherwise imported from outside the area? Is there a use pattern of local resources/utilitarian items and imported resources/non-utilitarian items, as early data suggest? Did the availability of obsidian in the local area affect its acquisition from outside of north central California?

2. Is the acquisition of obsidian nodules from the Tuscan Formation on the Cow Creek drainage in the Southern Cascade foothills a relatively recent phenomenon, or does it have its roots in the distant past?

3. Were the occupants of the Tehama Lake area middlemen in the obsidian trade, or were they recipients only?

Population Studies and Mortuary Practices

The discovery of human remains at three sites during the 1983 fieldwork has suggested that DuBois' (1935) and Goldschmidt's (1951) conclusions concerning burial practices need to be reexamined. The study of Native American human remains will be facilitated by liaison with the Bald Hills Wintu and the Nomlaki, who act as guardians to the remains of their ancestors. Test excavations at the six sites at Tehama suggest a much smaller number of human remains are present than at Dutch Gulch, where large numbers of interments are known to occur in the middens.

Methodology

One of the most important long-term goals of the research should be the testing and development of a wide variety of techniques to enhance the recovery of data from archeological sites. The framework of a large, multi-year investigation is ideally suited for this purpose. Many of the sites described in Chapter 4 will be completely destroyed during project development, and others will be subjected to gradual destruction from wave action or other factors once the reservoir becomes operational. One of the ultimate benefits of a research project such as that at Dutch Gulch and Tehama lakes should be the collection of large samples of materials from the majority of those sites that will be completely destroyed or heavily impacted. In order to do this, new methods of data recovery should be implemented during the testing and early mitigation phases of the investigation to insure their availability during the main portion of the research. At the end of the study, those techniques that were successful can be passed on to the archeological community for consideration, and those methodologies that were not effective can be made known so that other investigators do not waste time on ineffective procedures.

Stimulation of Regional Research

A final goal of considerable importance is the development of the research associated with the Cottonwood Creek archeological study as a catalyst for studies throughout the region. Often research projects turn inward, and individuals studying cultural resources in the surrounding area do not gain access to the data until months or years after the fieldwork is completed. In addition, individuals other than research staff are seldom consulted about their research goals, and how they might benefit the project study, or vice versa. The availability of funds to help develop a detailed chronology for the project area might enhance the research of other investigators in the region, while they in turn might be able to provide detailed distributional information on various artifact types which will help illuminate patterns of trade and settlement. Any additional research done in conjunction with the Tehama Lake project study should be viewed as a positive force which can ultimately have a significant effect on the study of cultural resources throughout the region.

Conclusions

Historically, research in the Tehama Lake project area has followed a pattern similar to other reservoir studies. The initial cultural resource study in the 1960s was limited by funding, time, and design to a survey of those areas considered likely to yield major prehistoric sites (Johns 1969). Lack of concern for historical resources, and emphasis on covering only those areas thought to have sites, were characteristic of that era of archeological research in California. As a result, relatively few resources were identified during the initial fieldwork. The attitude among most archeologists at the time is typified by Leonard (1969:6-7), who felt that it was best to proceed with excavations while conducting historic and ethnographic research--both of which were supplemental to the archeological investigation. Studies at the proposed Marysville Lake (Johnson and Theodoratus 1978), at New Melones Lake (Theodoratus 1976), and at Dutch Gulch Lake (Johnson and Theodoratus 1984a) clearly show that detailed ethnographic and historical research, and an intensive archeological survey based on more than intuition alone, should precede any major excavation effort.

The second phase of cultural resource investigation at Tehama Lake is also similar to earlier research projects. The scope of work required that all previously recorded archeological sites be relocated and studied in greater detail, that additional surveys be conducted, that the potential for ethnographic and historical research be addressed, and that proposals for the cost of mitigation of identified cultural resources be developed (Jensen 1978). The substantial number of prehistoric sites located during the 1977-78 fieldwork clearly shows that the bias and methodologies employed in the 1960s were no longer acceptable. The large discrepancy between the number of cultural resources found in 1977-78 and those recorded in 1982 suggests that additional thought should be given to research methodologies before similar projects are carried out in the future.

The U.S. Army Corps of Engineers, or any other contracting agency, should expect that cultural resource investigations will provide a basis for predicting the cultural resource potential of a project area. An analysis of the many reservoir projects (completed or underway) in the interior foothills of California suggests the following:

C-074861

1. The foothills are rich in both prehistoric and historic cultural resources.

2. Potential knowledgeable consultants (Native Americans and others with knowledge of history) are available, particularly in rural areas, and are often willing to provide helpful information.

3. In virtually every instance, substantial archival data exist in libraries and other repositories.

4. Enough archeological data are available concerning foothill localities that fairly reliable predictive models concerning prehistoric resources can be made, even if only limited surveys are conducted.

5. Archeological site recording and the availability of topographic maps have improved substantially, leading to a better data base.

The wide discrepancy in the number of cultural resources located and/or predicted during the 1967, 1977-78, and 1981-82 fieldwork should not be expected to occur in the future. Any archeological survey conducted before 1970 should be considered incomplete; many conducted after that time need to be re-evaluated. The 1982-83 cultural resource investigation at Tehama Lake revealed many research parameters which should be considered prior to any extensive archeological mitigation. An assessment of the historic and ethnographic resource potential of the project area should be completed. In many instances, historic sites which had not been located during survey were located after consultation with knowledgeable residents of the area. It is also evident that, while the location of certain types of prehistoric sites is often predictable, a large percentage of historic resources would never be discovered without the help of knowledgeable consultants and detailed archival research. Prior to the conclusion of the archeological study for the Cottonwood Creek project, it is recommended that the various investigators pool their knowledge to develop new procedures and models, and streamline old ones, to better serve research of this type.

It is clear that the investigation of cultural resources in the Tehama Lake project area will benefit from additional historic and ethnographic research. This will serve to provide partial mitigation of impacts on certain cultural resources, limiting the amount of archeological work needed. It is also evident that the large number and variety of sites will need to be considered carefully before any major mitigation effort begins. This is important in view of the funding limits imposed by current federal regulations.

Fitting (1982) has recently reviewed a portion of the history of the New Melones Lake project. He describes in detail the management problems, archeological infighting, mitigation plans, and other subjects relating to that often discussed--and more often maligned--project. While all such problems may not be eliminated completely, most should be avoidable when additional work is done at Tehama Lake. As suggested in this chapter, a wide variety of methodologies can and should be tried, and numerous research questions and designs can be engaged through the participation of many institutions and individuals. Partially funded field schools and volunteer programs might also be used to expand the collection of data beyond the

limits of the project area, and to sites not considered eligible for governmental funding. The unfortunate series of events that occurred at New Melones should serve as an inducement for the archeological community to work together to make the Cottonwood Creek archeological study a model of cooperation and use of public funds.

The State Historic Preservation office has recently issued guidelines for the development of research designs for archeological investigations. Rondeau (1982) points out that archeologists often fail to address in their analysis the research design upon which their investigations were predicated. While this report addresses the original research design, it was also possible to investigate a wider range of questions than was originally thought possible. Many cultural research projects are oriented toward the investigation of one or two major hypotheses which not only limit the type of research conducted, but in many cases cannot be addressed with the data ultimately acquired. The cooperation of a large number of investigators and the study of several hypotheses concerning the cultural resources will likely add more to our knowledge of the prehistory and history of the Tehama Lake area than if a small number of individuals and ideas are involved. Initial steps have already been taken toward this goal by involving students and faculty from various institutions actively carrying out research in the area. In addition, initial contacts have been made with other professional archeologists working in the region in order to determine the scope of their research interests.

Through the development of a mitigative program based on many of the recommendations in this chapter, along with the cooperation of the archeological community, it will be possible to use the data derived from this research to substantially increase our knowledge of the prehistory of north central California. Much of the information will be suitable for the creation of displays and the development of information programs for the enjoyment and educational benefit of the public.

BIBLIOGRAPHY

American Folklife Center, Library of Congress
1983 Cultural Conservation: The Protection of Cultural Heritage in the United States. American Folklife Center, Library of Congress in cooperation with the National Park Service, Department of the Interior. Ormond H. Loomis, Coordinator. Library of Congress, Washington, D.C.

Arnold, Brigham
1964 A Survey of Archaeological Resources Along the Pacific Gas and Electric Company's Canadian Gas Line in California. On File, Pacific Gas and Electric Company, San Francisco.

Baker, Suzanne
1984 Archaeological Investigations in the Tower House District, Whiskeytown Unit of the Whiskeytown--Shasta-Trinity National Recreation Area, Shasta County, California. Report Prepared for the National Park Service, Western Region, San Francisco, CA.

Barbour, Michael G., and Jack Major
1977 Terrestrial Vegetation of California. John Wiley and Sons, New York.

Bard, J. C., C. I. Busby and L. S. Kobori
1983 A Cultural Resource Overview and Inventory of the Proposed Thomes-Newville Reservoir, Glenn and Tehama Counties, California. Prepared by Basin Research Associates, Inc. and Cultural Systems Research, Inc. for State of California Resources Agency, Department of Water Resources.

Baumhoff, Martin A.
1955 Excavation of Site Teh-1 (Kingsley Cave). University of California Archaeological Survey Reports 30:40-73. Berkeley, CA.

1957 An Introduction to Yana Archaeology. University of California Archaeological Survey Reports 40:64. Berkeley, CA.

1963 Ecological Determinants of Aboriginal California Populations. University of California Publications in American Archaeology and Ethnology 49:155-236. Berkeley, CA.

Baumhoff, Martin A., and David Olmsted
1963 Palaihnihan: Radiocarbon Support for Glottochronology. American Anthropologist 65:278-284.

Beck, Warren A., and Ynez D. Haase
1974 Historical Atlas of California. University of Oklahoma Press, Norman, Oklahoma.

Bettinger, Robert L.
1975 The Surface Archaeology of Owens Valley, Eastern California: Prehistoric Man-Land Relationships in the Great Basin. Unpublished Ph.D. Dissertation, Department of Anthropology, University of California, Riverside.

1977 Aboriginal Human Ecology in Owens Valley: Prehistoric Change in the Great Basin. American Antiquity 42:3-17.

1982 Aboriginal Exchange and Territoriality in Owens Valley, California. In, Contexts for Prehistoric Exchange. Edited by Ericson, J. E., and T. K. Earle, pp. 103-127. Academic Press, New York.

Binford, Lewis R.
1962 Archaeology as Anthropology. American Antiquity 28:217-225.

1964 A Consideration of Archaeological Research Design. American Antiquity 29(4):425-441.

1965 Archaeological Systematics and the Study of Cultural Process. American Antiquity 31(2):203-210.

Bleyhl, Norris A.
1978 Indian-White Relationship in Northern California, 1849-1920. In, Congressional Set of United States Documents. On File, Association for Northern California Records and Research, Chico, CA.

Breschini, Gary S., and Trudy Haversat
1980 The Physical Anthropology of Central California, Part 1. Osteometric Data. Coyote Press, Salinas.

Bofinger, Minnie (Compiler)
n.d. Tehama County History Scrapbook. (44 pages of clippings with three letters and one handwritten article.) On File, Kraft Library, Red Bluff, CA.

Boggs, Mae Helene
n.d. Scrapbooks. 5 Vol. On File, Shasta County Museum, Shasta City, CA.

1942 My Playhouse Was a Concord Coach. Howell-North Press, Oakland, CA.

Breternitz, David A., Principal Investigator
1983 Dolores Archaeological Program: Field Investigations and Analysis--1978. United States Department of the Interior, Bureau of Reclamation, Denver, CO.

California Almanac Company
1971 California, Past, Present, Future. Edited by Evelyn D. Salitore. California Almanac Company, Lakewood, CA.

California State Department of Water Resources
1977 Hydrologic Data: 1975 Volume II: Northeastern California. Bulletin No. 130-75. Sacramento, CA.

Campbell, C. C.
1932 The California Indians. Essay written for the Division of Indian Welfare. Available in Personal Collection, Ruth Hitchcock, Red Bluff, CA.

Casteel, Richard W.
1970 Areal Distribution of the Native Freshwater Fish Fauna of California. In, Papers on California and Great Basin Prehistory. Center for Archaeological Research 2:9-26. Davis, CA.

Chartkoff, Joseph L., and Kerry K. Chartkoff
1968 Excavations at the Finch Site: Research Strategy and Procedures. University of California at Los Angeles, Archaeological Survey Annual Report 10:315-370. Los Angeles.

1983 Excavations at the Patrick Site (4-Butte-1) in the Archaeology of Two Northern California Sites. Institute of Archaeology Monograph 22. University of California at Los Angeles.

Chartkoff, Joseph L., and Jeffrey Childress
1966 An Archaeological Survey of the English Ridge Reservoir in Lake and Mendocino Counties, California. On File, National Park Service, Western Region, San Francisco.

Clewett, Stanley E.
1977 CA-SHA-475: An Interim Report on Squaw Creek #1, A Complex Stratified Site in the Southern Klamath Mountains. Paper Presented at the Symposium on the Archaeology of the Northern Coast Ranges, University of California, Davis.

Clewett, Stanley E., and Elaine Sundahl
1980 Clikapudi Archaeological District: Field Research 1979. On File, Shasta-Trinity National Forest, Redding, CA.

1981 The Archaeological Investigation of Eagle Court, A Partial Mitigation of CA-SHA-266, Redding, California. Shasta College Archaeology Laboratory, Redding, CA.

1982a Clikapudi Archaeological District 1981 Field Research. Shasta College Archaeology Laboratory, Redding, CA.

1982b Archaeological Testing for the Hartnell Avenue Extension Project, Redding, California. Shasta College Archaeology Laboratory, Redding, CA.

1982c Tehama Pattern: An Alternate Model for Northern California Archaeology Symposium, California State University, Chico, December 5, 1982.

1983 Archaeological Excavations at Squaw Creek, Shasta County, California. Shasta College Archaeology Laboratory, Redding, CA.

Clewett, Stanley E., Faye Teach, and Eileen Spencer
1982 The Archaeological Investigation of CA-SHA-900: The Benton Tract, Redding, California. Shasta College Cultural Resource Center, Redding, CA.

Crew, Harvey
1984 A Lithic Examination of the Collection from CA-SHA-1434. Report Available from the City of Redding. Prepared by Ann Peak and Associates. Redding, CA.

Curtin, Jeremiah
n.d. Unpublished Notes (1884-1889). On File, Smithsonian Institution, Washington D.C.

Dailey, Donald H.
1973 Early Cretaceous Foraminifera from the Budden Canyon Formation, Northwestern Sacramento Valley, California. University of California Publications in Geological Sciences, Volume 106. Berkeley.

Demetracopoutou, Dorothy (Lee)
1935 Wintu Songs. Anthropos 30:483-494.

Dotta, James
1964 The Salvage Archaeology of SHA-237, Shasta County, California. On File, California State Department of Parks and Recreation, Sacramento, CA.

Dotta, James, and R. Hullinger
1964 The Salvage Archaeology of a Wintu Fishing Station, SHA-207, Shasta County, California. On File, California State Department of Parks and Recreation, Sacramento, CA.

DuBois, Cora
1935 Wintu Ethnography. University of California Publication in American Archaeology and Ethnology 36(1):1-148. Berkeley, CA.

1939 The 1870 Ghost Dance. University of California Anthropological Records 3(1):1-151. Berkeley, CA.

Earle, Timothy K., and Jonathon E. Ericson
1977 Exchange Systems in Prehistory. Academic Press, New York.

Edwards, Robert (Editor)
1968 Notes on the Wintun. Data Sheets Prepared for the California Archaeology Workshop Sponsored by the Center for Archaeological Research, University of California, Davis, February 10-11, 1968.

Edwards, Robert L.
1969 The Prehistory of the Puimak Wintun, Thomes Creek, Tehama County, California: Including Suggested Chronological Model of the Northern Sacramento Valley Region Prehistory. Unpublished Masters Thesis, Department of Anthropology, University of California, Davis.

Eilet's Pocket County Atlas
n.d. Eilet's Pocket County Atlas of California. On File, Shasta County Phamphlet Collection, The Bancroft Library, University of California, Berkeley.

Ericson, Jonathon E., and Timothy K. Earle
1982 Contexts for Prehistoric Exchange. Academic Press, New York.

Fairbanks, B. S.
1892 Geological Map of Shasta County, 1892. Prepared for the 11th Report to the State Mineralogist. Published in Lithograph by Britton and Rey, San Francisco.

Farber, Alfred, and Neal Neuenschwander
1983 Archaeological Test Excavation at Prehistoric Site CA-TRI-327, Trinity County, California. Prepared for Southern Pacific Land Company, Weaverville, CA.

Fitting, James E.
1982 The New Melones Project: Murphy's Law in Operation. In, Learning from Experience, edited by Patti Johnson. Contract Abstracts 3(1):14-18. Albuquerque, N.M.

Foster, John W., and Jeffrey C. Bingham
1978 Archeology in Solution: Testing Inundation's Effects at Folsom Reservoir, California. Unpublished Report, on File, United States Department of the Interior, National Park Service, Southwest Cultural Resources Center, Santa Fe, NM.

Foster, John W., Jeffrey C. Bingham, Christina Carter, Karen Cooley-Reynolds, and Johns L. Kelly
1977 The Effects of Inundation on the Pedersen Site, CA-ELD-201, Folsom Lake, California. Unpublished Report, California State Department of Parks and Recreation, Sacramento, CA.

Fowler, Catherine S.
1972 Some Ecological Clues to Proto-Numic Homelands. In, Great Basin Cultural Ecology, a Symposium, Edited by Don D. Fowler. Desert Research Institute Publications in the Social Sciences 8, Reno, NV.

Frank, B. F., and H. W. Chappell
1881 The History and Business Directory of Shasta County, California. Reprinted in 1978 by the Redding Independent Book and Job Print, Redding, CA.

Furlong, E. L.
1904 An Account of the Preliminary Excavations in a Recently Explored Quaternary Cave in Shasta County, California. American Journal of Science 20(497):53-55).

1906 The Exploration of Samwel Cave. American Journal of Science 22:235-47.

George, Julia
1981 Faunal Analysis of CA-SHA-266. Unpublished M.A. Thesis, Department of Anthropology, California State University, Chico.

George, Julia, and Dennis R. Mertz
1983 Faunal Analysis of CA-SHA-290. On File, Archeological Student Center, California State University, Sacramento.

Gerow, Bert, and Roland Force
1968 An Analysis of the University Village Complex. Stanford University Press, Stanford, CA.

Gifford, Edward W.
1926 California Anthropometry. University of California Publications in American Archaeology and Ethnology 22(2):217-390. Berkeley, CA.

1947 Californian Shell Artifacts. University of California Anthropological Records 9(1):1-114. Berkeley, CA.

Giles, Rosena A.
1947 Up Where the North Begins--A History of Shasta County, California 1848-1915. Shasta County Historical Society, Redding, CA.

1949 Shasta County California: A History. BioBooks, Oakland, CA.

Goldschmidt, Walter
1951 Nomlaki Ethnography. University of California Publications in American Archaeology and Ethnology 42(4):303-443. Berkeley, CA.

1978 Nomlaki. Handbook of North American Indians, Vol. 8, California, Edited by Robert F. Heizer, pp. 341-349, Smithsonian Institution, Washington, D.C.

Golomshtok, Eugene A.
1923 Ethnology of the Atsugewi Indians. Unpublished Masters Thesis, Department of Anthropology, University of California, Berkeley.

Gowans, K.D.
1967 Soil Survey of Tehama County, California. United States Department of Agriculture, Soil Conservation Service and Forest Service. U.S. Government Printing Office, Washington, D.C.

Great Register
1879 Index to the Great Register of the County of Tehama. On File, Bancroft Library, University of California, Berkeley.

Greenway, Gregory B.
1982 Projectile Point Variability at Deadman's Cave (CA-TEH-290) in the Southern Cascade Mountains of Northeastern California. Unpublished Masters Thesis, Department of Anthropology, California State University, Sacramento.

Griffin, James R.
1977 Oak Woodland. In, Terrestrial Vegetation of California, Edited by Michael G. Barbour and Jack Major, pp. 383-415. John Wiley and Sons, New York.

Guilford-Kardell, Margaret, and James Dotta
1980 Papers on Wintu Ethnography: 239 Wintu Villages in Shasta County circa 1850. Occasional Papers of the Redding Museum, Redding Museum and Art Center, Redding, CA.

Harrington, John P.
n.d. Unpublished Fieldnotes. On File, Smithsonian Institution, Washington, D.C.

Haskins, C. W.
1890 The Argonauts of California. Fords, Howard, and Hulbert Publishers, New York.

Hayes, Benjamin Ignatius
n.d. Hayes Scrapbooks. V.42 (Indians, V.5), on File, The Bancroft Library, University of California, Berkeley.

Hitchcock, Ruth Hughes
1968 The Wilhelm Ludwig Family. Term Paper, Shasta College, Fall 1968. Available in Personal Collection, Ruth Hitchcock, Red Bluff, CA.

1982 Leaves of the Past, 1828-1880; A Pioneer Register, Including an Overview of the History and Events of Early Tehama County. Association for Northern California Records and Research, Occasional Publication No. 10, California State University, Chico.

Hughes, Richard
1983 Exploring Diachronic Variability in Obsidian Procurement Patterns in Northeast California and South Central Oregon: Geochemical Characterization of Obsidian Sources and Projectile Points by Energy Disbursive X-ray Fluorescence. Unpublished Ph.D. Dissertation, Department of Anthropology, University of California, Davis.

Hunt, Ann
1960 The Allen and Jones Massacres and the Extermination of the Yana. The Covered Wagon, Journal of the Shasta County Historical Society, pp. 40-52, Redding, CA.

1967 Trappers in Shasta County. The Covered Wagon, Journal of the Shasta County Historical Society, pp. 17-30, Redding, CA.

C-074871

Immigration Association of California
n.d. Shasta County, California. Immigration Association of Calfornia, San Francisco.

Ingles, Lloyd G.
1965 Mammals of the Pacific States: California, Oregon, Washington. Stanford University Press, Stanford, CA.

Irwin, William P.
1966 Geology of the Klamath Mountains. In, Geology of Northern California, California Division of Mines and Geology, Bulletin 190. San Francisco, CA.

Jackson, Thomas L.
1974 The Economics of Obsidian in Central California Prehistory: Applications of X-ray Fluorescence Spectography in Archaeology. Unpublished M.A. Thesis, Department of Anthropology, San Francisco State University.

Jensen, Peter M.
1970 Notes on the Archaeology of the Sutter Buttes, California. In, Papers on California and Great Basin Prehistory. Publiction No. 2, Center for Archaeological Research, Davis, CA.

1977 Test Excavations at CA-SHA-543 on East Fork Creek, Shasta County. On file, Bureau of Land Management, Redding District Office, Redding, CA.

1978 Archaeological Reconnaissance at the Authorized Tehama and Dutch Gulch Reservoirs on Cottonwood Creek. Volumes I and II. On File, United States Army Corps of Engineers, Sacramento District, Sacramento, CA.

1980 Archaeological Excavations at the Kett Site, CA-SHA-491, Shasta County, California. Anthropological Paper 2, California State University Foundation, Chico.

Jensen, Peter M., and Alfred Farber
1982 Archaeological Test Excavation at Site CA-TRI-205 on 02-TRI-299 P.M. 36.7 to 37.2 02206-135711. Prepared for California Department of Transportation, Sacramento District Office, Sacramento, CA.

Jensen, Peter M., and Paul R. Reed
1979 An Anthropological Overview and Cultural Resources Inventory of the Northern Sacramento Valley and Southern Cascade Range. United States Department of the Interior, Bureau of Land Management, Redding, CA.

Jewell, Donald P.
1964 Archeology of the Oroville Dam Spillway. California State Department of Parks and Recreation, Archeological Report No. 10, Part 1. Sacramento, CA.

Johns, Darrell Robert
1969 Archaeological Reconnaissance of the Proposed Farquhar School Reservoir in Tehama County, California. On File, National Park Service, Western Region, Tucson, AZ.

Johnson, Jerald Jay
n.d. Archaeological Investigations in Northeastern California: 1939-1979. Vol. IV (Projectile Points). In Preparation. Sacramento, CA.

1970 Archeological Investigations at the Keeler Site (CA-TEH-300). On File, Archeological Study Center, Department of Anthropology, California State University, Sacramento.

1974 An Archaeological Reconnaissance of the Pit 1 Project, FPC No. 2687:V.P. & G.M. On File, Pacific Gas and Electric Company, San Francisco, CA.

1975 Archeological Investigations In and Around Lassen Volcanic National Park in 1975. On File, U.S. Department of the Interior, National Park Service, Western Regional Office, Tucson, AZ.

1983a Archaeological Investigations in Northeastern California: 1939-1979 Vol. I (Physiography, Ethnography, History, Archaeological Localities). On File, Archeological Study Center, Department of Anthropology, California State University, Sacramento.

1983b Archaeological Investigations in Northeastern California: 1939-1979. Vol. II (Human Remains, Petroglyphs, Structures, and Miscellaneous Features). On File, Archeological Study Center, Department of Anthropology, California State University, Sacramento.

1983c Possible Criteria for Distinguishing Archeological Cultural Boundaries Between Two Closely Related Ethnographic Wintun Populations and an Adjacent Yana Population. Annual Meetings, Society for American Archeology, Pittsburgh, PA..

1984a Ground Stone Assemblages in Northeastern California. Unpublished Ph.D. Dissertation in Anthropology. On File, University of California, Davis.

1984b Archaeological Investigations in Northeastern California: 1939-1979. Vol. III (Ground Stone Industries). Archeological Study Center, Department of Anthropology, California State University, Sacramento. In Preparation.

Johnson, Jerald Jay, Steven B. Dondero, and Clinton Blount
n.d. Black Butte Lake, Glenn and Tehama Counties, California: Excavations at Archeological Site CA-TEH-10. Draft in Process, Prepared for the U.S. Army Corps of Edngineers, Sacramento District, Sacramento, CA.

Johnson, Jerald Jay, and Patti P. Johnson
1969 Archaeological Reconnaissance of the Pit 3, 4, and 5 and Battle Creek Projects. On File, Pacific Gas and Electric Company, San Francisco, CA.

Johnson, Jerald Jay, and Dorothea J Theodoratus
1978 Cultural Resources of the Marysville Lake, California Project (Parks Bar Site), Yuba and Nevada Counties, California. Prepared for the United States Army Corps of Engineers, Sacramento District, Sacramento, CA.

1984a Cottonwood Creek Project, Shasta and Tehama Counties, California: Dutch Gulch Lake, Intensive Cultural Resources Survey. Prepared for the U.S. Army Corps of Engineers, Sacramento District, Sacramento, CA.

1984b Draft Report: Black Butte Lake, Glenn and Tehama Counties, California: Intensive Cultural Resources Survey. Prepared for the U.S. Army Corps of Engineers, Sacramento District, Sacramento, CA.

Johnson, Jerald Jay, and Wayne Wiant
1975 An Archaeological Reconnaissance in Portions of the Mill and Deer Creek Canyons Located Within the Almanor District of Lassen National Forest, California. On File, U.S. Department of Agriculture, Forest Service, Region 5, San Francisco, CA.

Johnson, Keith L.
1976 Test Excavations at the Old Tower House Site (CA-SHA-192), Whiskeytown National Recreation Area, Shasta County, California. On File, National Park Service, Western Region, Tucson, AZ.

Johnson, Keith L., and Lucy Skjelstad
1974 The Salvage Archaeology of Site 4-SHA-197, Whiskeytown National Recreation Area, Shasta County, California. On File, National Park Service, Western Service Center, San Francisco, CA.

Johnston, James D.
1975 Carbonates: A Chronological Indicator. Unpublished Masters Thesis, Department of Anthropology, California State University, Sacramento.

1978 Wintu and Yana Territorial Boundary. Paper Presented at the 12th Annual Meeting of the Society for California Archeology, Yosemite, CA.

Johnston, James D., and Elizabeth Budy
1982 Cultural Resource Management Overview, Lassen National Forest, Vol. 1 Cultural History. On File, Lassen National Forest, Susanville, CA.

Kelsey, C. E. (Compiler)
1971 Census of non-reservation California Indians, 1905-1906. Edited by Robert F. Heizer. Miscellaneous Publications of the University of California Archaeological Facility, Berkeley.

King, Thomas Fulling
1970 The Dead at Tiburon; Social Organization and Mortuary Patterns on Northern San Francisco Bay, Northwestern California Archaeological Society Occasional Papers 2, Petaluma, CA.

1976 Political Differentiation Among Hunter-Gatherers: An Archaeological Test. Unpublished Ph.D. Dissertation, Department of Anthropology, University of California, Riverside.

Knudtson, Peter M.
1977 The Wintun Indians of California and their Neighbors. Naturegraph Publishers, Happy Camp, CA.

Kowta, Makoto
1975 Research Design: Northeastern California. On File, District 2 Society for California Archaeology Clearing House. Department of Anthropology, California State University, Chico.

1978 Maidu Prehistory: The View From Chico. On File, District 2 Society for California Archaeology Clearing House. Department of Anthropology, California State University, Chico.

1984 Further Thoughts On Maiduan Prehistory: The View From Chico, 1984. Paper Presented at the Society for California Archaeology Annual Meetings, Salinas, California, March 29, 1984.

Kroeber, Alfred L.
1925 Handbook of the Indians of California. United States Bureau of American Ethnology, Bulletin 78. Smithsonian Institution, Washington, D.C.

1932 The Patwin and Their Neighbors. University of California Publications in American Archaeology and Ethnology 29(4):253-423. Berkeley.

LaPena, Frank
1978 Wintu. Handbook of North American Indians, Vol. 8, California, Edited by Robert F. Heizer, pp. 324-340. Smithsonian Institution, Washington, D.C.

Lee, Dorothy (Demetracopoulou)
1941 Some Indian Texts Dealing with the Supernatural. Review of Religion 5(4):403-411.

1944 Linguistic Reflection of Wintu Thought. In, International Journal of American Linguistics, Vol. 10, pp. 181-187.

1950 The Conception of Self Among the Wintu Indians. In, Journal of Abnormal and Social Psychology, No. 3, Vol. 45, pp. 538-543.

Lenihan, Daniel J., T. Carrell, S. Fosberg, L. Murphy, S. Rayl, and J. Ware
1981 The Final Report of the National Reservoir Inundation Study, Vol. I. Department of the Interior, National Park Service, Southwest Cultural Resources Center, Santa Fe, N.M.

Leonard, N. Nelson III
1969 Archaeological Reconnaissance of the Proposed Dutch Gulch Reservoir in Shasta and Tehama Counties, California. Unpublished On File, National Park Service, Western Region, San Francisco.

Lewis, E. J.
1880 Tehama County, California: Illustrated Description of Its Scenery, Fine Residences, Public Buildings, Manufactories, Hotels, Farm Scenes, Schools, Mines, with an Historical Sketch of the County. Elliott and Moore, San Francisco, CA.

Lewis Publishing Company
1891 Memorial and Biographical History of Northern California. The Lewis Publishing Company, Chicago, Ill.

Lengenfelter Geneology and Research Collection
n.d. In the Special Collections of the California State University, Chico, Library, Chico, CA.

Magee, William
1854 Field Notes for the Survey of T29N, R5W, MDM. On Microfiche at the Bureau of Land Management, Sacramento, CA.

1858 Field Notes for the Survey of T29N, R5W, MDM. On Microfiche at the Bureau of Land Management, Sacramento, CA.

McAfee Brothers, Land Agents
1884(?) Tehama County California: Geography, Soil, Climate, Productions, Etc. San Francisco, CA.

McKenney, L. M., and Co., Publisher
1884 County Directory of Yuba, Sutter, Colusa, Butte, and Tehama Counties, 1884-1885. Microfilm. Tehama County Library, Red Bluff, CA.

McNamar, Myrtle
1952 Way Back When. Copywrited 1952 by Myrtle McNamar. On File, Cottonwood Museum, Cottonwood, CA.

Merriam, C. Hart
n.d. Unpublished Notes. The Bancroft Library. University of California, Berkeley.

1898-1938 Journals [California] of C. Hart Merriam. Manuscript Division. Library of Congress, Washington, D.C.

1957 Wintoon Indians. University of California Archaeological Survey Reports 38:40-43. Berkeley.

1966 Distribution, Classification of Wintoon Tribes. In, Ethnographic Notes on California Indian Tribes I. University of California Archaeological Survey Reports 68(I). Compiled and Edited by Robert F. Heizer, pp. 52-59. University of California Archaeological Research Facility, Berkeley.

1967a Ethnographic Notes on California Indians Tribes III. Ethnological Notes on Central California Indian Tribes. University of California Archaeological Survey Reports 68(II). Compiled and Edited by Robert F. Heizer. University of California Archaeological Research Facility. Berkeley.

1967b Wintoon. In, Ethnographic Notes on California Indian Tribes III, Ethnological Notes on Central California Indian Tribes. University of California Archaeological Survey Reports 68(II). Compiled and Edited by Robert F. Heizer, pp. 251-281. University of California Archaeological Research Facility, Berkeley.

Merriam, John C.
1906 Recent Cave Explorations in California. American Anthropologist 8(2):221-228.

1927 The Cave of the Magic Pool. Scribner's Magazine 82:264-272.

Mohr, Albert
1949 Appraisal of the Archeological Resources of Black Butte Reservoir, Glenn and Tehama Counties, California. Pacific Coast Division of River Basin Surveys. Lincoln, NE.

Murphy, Michael A., P. U. Rodda, and D. M. Mortan
1969 Geology of the Ono Quadrangle, Shasta and Tehama Counties. California Bulletin 192, California Division of Mines and Geology, San Francisco.

Munz, Philip A., with David D. Keck
1959 A California Flora. University of California Press, Berkeley.

Offermann, Janis, and Robert I. Orlins
1982 An Archaeological Survey of the Cottonwood-Elverta #3 Transmission Line for Shasta, Tehama and Butte Counties, California. Prepared for the Department of Energy, Western Area Power Administration, Sacramento, CA.

Olsen, William H., and Francis A. Riddell
1963 The Archeology of the Western Pacific Railroad Relocation. California State Department of Parks and Recreation, Archeological Report 7, Sacramento, CA.

Payen, Louis A.
1970 A Spearthrower (Atlatl) from Potter Creek Cave, Shasta County, California. Center For Archaeological Research at Davis 2:157-170. Davis, CA.

Peterson, Edward
1965 In the Shadow of the Mountain. Cottonwood, CA.

1974 Cottonwood, the Brief History of a Small California Town. Copyright by the Author. Cottonwood, CA.

C-074877

Plog, Fred T.
1974 The Study of Prehistoric Change. Academic Press, New York.

Powers, Stephen
1877 Tribes of California. Contributions to North American Ethnology, Vol. III. Department of the Interior, Geographical and Geological Survey of the Rocky Mountain Region, Government Printing Office, Washington D.C. (Reprinted 1976, University of California Press, Berkeley).

Punnet Brothers Publishers
1908 Map of the Sacramento Valley and Vicinity (including Tehama County). Copyright 1908. Sheet 2 of 6. On File, California State Library, Sacramento, CA.

Quint, California B.
1960 Jedediah Strong Smith. The Covered Wagon, Journal of the Shasta County Historical Society, pp. 14-41, Redding, CA.

Rand McNally and Company
1935 Map of Tehama and Southern Shasta County, California. Rand McNally and Company San Francisco. On File, The Bancroft Library, University of California, Berkeley.

Raven, Christopher, and S. K. Goldberg, M. J. Moratto, and K. M. Banks
1984 Archaeological Investigations in the Sacramento River Canyon. Volume I: Report of Testing at Seven Aboriginal Sites. On File, Environmental Studies Branch, California Department of Transportation, Division of Transportation Planning, Sacramento, CA.

Red Bluff Independent
1864 News Item. March 28, 1864.

1866 News Item, September 5, 1866.

Rentschler, G. W. (Compiler)
1892-1894 A Directory of Placer, Nevada, Yuba, Butte, Sutter, Colusa, Glenn, Tehama, and Shasta Counties for 1892-1894 (Micofilm Palo Alto). San Francisco Directory Company, San Francisco, CA.

Ritter, Eric W.
n.d. Research Design--Redding Foothill Region (Shasta County). Manuscript in Author's Possession (January 15, 1984). Redding, CA.

1968 Culture History of "Tic Wiah" (4-BUT-84), Oroville Locality, California. Unpublished Masters Thesis. University of California, Davis.

Rocq, Margaret M., Editor
1970 California Local History, A Bibliography and Union List of Library Holdings. Stanford University Press, Stanford, CA.

1976 California Local History; A Bibliography and Union List of Library Holdings. Supplement to the Second Edition Covering Works Published 1961 through 1970. Stanford University Press, Stanford, CA.

Rondeau, Michael
1982 The Archeology of the Truckee Site, Nevada County, California. On File, California State Department of Food and Agriculture, Sacramento, CA.

Russell, Richard J.
1926 Climates of California. University of California Publications in Geography 2:73-84, Berkeley, CA.

Russo, Marianne L.
1980 Hooper Springs Archeological Project: A Study of Prehistoric Adaptation and Archeological Methodology. Masters Thesis Research Proposal, Department of Anthropology, California State University, Sacramento.

Sacramento Bee
1966 100 Years Ago Today. Sacramento Bee, May 7, 1966. On File, Tehama County Library, Red Bluff, CA.

Sapir, Edward, and Leslie Spier
1943 Notes on the Culture of the Yana. University of California Anthropological Records 3(3):239-298. Berkeley, CA.

Schafer, Henry Albert
1956 Scrapbook. On File, Tehama County Library, Red Bluff, CA.

Shackelford, H. B.
1887 Official Map of the County of Tehama, California: Sheets 1 and 2 of 3. Britton and Rey, San Francisco, CA.

Shackelford, H. B., and F. J. Nugent (Compilers)
1878 Official Map of Tehama County, California: Sheet 1 of 4. Britton and Rey, San Francisco, CA.

Shasta County Board of Supervisors
1862 Official Map of Shasta County, Approved by the Board of Supervisors. Lithographed by Britton and Company, San Francisco, CA.

Shasta County Immigration Association
1885 Descriptive Circular of Shasta County, California. Shasta County Free Library, Redding, CA.

1886 "Shasta County" Redding California: Shasta County Immigration Association. On File, The Shasta County Pamphlet Collection, The Bancroft Library, University of California, Berkeley.

Shasta County Scrapbook
1880- Shasta County Scrapbook. On Microfilm at the Shasta County Free Library, Redding, CA.

Shipley, William F.
1978 Native Languages of California. Handbook of North American Indians, Vol. 8, California, pp. 80-90. Edited by Robert F. Heizer, Smithsonian Institution, Washington, D.C.

Sinclair, William J.
1904 The Exploration of the Potter Creek Cave. University of California Publications in American Archaeology and Ethnology 2(1):1-28. Berkeley, CA.

Smith, C. E., and W. D. Weymouth
1952 Archaeology of the Shasta Dam Area, California. University of California Archaeological Survey Reports 18. Berkeley, CA.

Steger, Gertrude
1966 Place Names of Shasta County. La Siesta Press, Glendale, CA.

Sundahl, Elaine
1979 Salt Creek: A Test of Wintu-Yana Boundaries in Shasta County. Paper Prepared for Dr. Makoto Kowta, Department of Anthropology, California State University, Chico.

1982a The Shasta Complex in the Redding Area, California. Unpublished Masters Thesis, Department of Anthropology, California State University, Chico.

1982b The Shasta Complex in the Redding Area. Paper Presented at the Northern California Archaeology Symposium, California State University, Chico, December 5, 1982.

Tehama County
1903 Map. California Map Collection. California Room, California State Library, Sacramento, CA.

Theodoratus Cultural Research
1979 Anthropological Overview of a Portion of Lassen and Modoc Counties, Vol. I. Department of the Interior, Bureau of Land Management, Susanville, CA.

1981 Native American Cultural Overview, Shasta-Trinity National Forest. Department of Agriculture, Forest Service, Shasta-Trinity National Forest, Redding, CA.

1982 Field Data Collected During Interviews with Area Residents and Other Consultants in 1982. On File, Theodoratus Cultural Research, Fair Oaks, CA.

1984 Ethnographic Inventory for Public Law 95-341, North Central California. Report for U.S. States Department of Agriculture, Forest Service. Shasta-Trinity National Forest and Mendocino National Forest (Corning and Stony Ford Ranger District) in Cooperation with U.S. Department of the Interior, Bureau of Land Management, Redding. On File, Shasta-Trinity National Forest, Redding, CA.

Theodoratus, Dorothea (Compiler)
1976 An Ethnographic Study of the New Melones Lake Project. Report for the U.S. Army Corps of Engineers, Sacramento District, Sacramento, CA.

Thomas, David Hurst
1969 Great Basin Hunting Patterns: A Quantitative Method for Treating Faunal Remains. American Antiquity 34(4):392-401.

1971 Prehistoric Subsistence Settlement Patterns of the Reese River Valley, Central Nevada. Unpublished Ph.D. Dissertation, Department of Anthropology, University of California, Davis.

1974 Predicting the Past: An Introduction to Anthropological Archaeology. Holt, Rinehart and Winston, New York.

1979a Archaeology. Holt, Rinehart and Winston, New York.

1979b On Julian Steward's Models of Shoshonean Sociopolitical Organization: A Great Bias in the Basin? Paper Presented at Meetings of the American Ethnological Society, Vancouver, B.C.

1983a The Archaeology of Monitor Valley 1: Epistemology. American Museum of Natural History Anthropological Papers 58:(1). New York.

1983b The Archaeology of Monitor Valley 2: Gatecliff Shelter. American Museum of Natural History Anthropological Papers 59:(1). New York.

Thompson, Kenneth
1961 Riparian Forests of the Sacramento Valley, California. Annals of the Association of American Geographers 51(3):294-315.

Tracy, C. C.
1854 Field Notes of Survey of T29N R6W MDM, on Microfiche at the Bureau of Land Management, Sacramento, CA.

1857 Field Notes of Survey of T29N R6W MDM, on Microfiche at the Bureau of Land Management, Sacramento, CA.

Treganza, Adan E.
1952 The Archaeological Resources of Seven Reservoir Areas, Central California. On File, National Park Service, Western Region, San Francisco, CA.

1954 Salvage Archaeology in Nimbus and Redbank Reservoir Areas, California. University of California Archaeological Survey Reports 26. Berkeley, CA.

1958 Salvage Archaeology in the Trinity Reservoir Area, Northern California. University of California Archeological Survey Report 43. Berkeley, CA.

1959 Salvage Archaeology in the Trinity Reservoir Area, Northern California-Field Season 1958. University of California Archaeological Survey Reports 46. Berkeley, CA.

1961 Salvage Archaeology along Clear Creek and Cow Creek Shasta County, California. On File, National Park Service, Western Regional Service Center, Tucson, AZ.

1963 Salvage Archaeology in the Red Bluff-Redding Areas of Shasta and Tehama Counties, California. On File, National Park Service, Western Region, San Francisco, CA.

1964 An Ethno-Archaeological Examination of Samwel Cave. Cave Studies No. 12. Cave Research Associates, Castro Valley, CA.

Treganza, Adan E., and Martin H. Heicksen
1960 Salvage Archaeology in the Whiskeytown Reservoir Area and the Wintu Pumping Plant Shasta County, California. Occasional Paper No. 1, San Francisco State College, San Francisco, CA.

1969 The Archaeology of the Black Butte Reservoir Region, Glenn and Tehama Counties. Occasional Paper 2, San Francisco State University, San Francisco.

Treganza, Adan E., Robert L. Edwards, and Thomas F. King
1965 Archaeological Survey and Excavations along the Tehama-Colusa Canal, Central California. On File, National Park Service, Western Region, San Francisco, CA.

True, Delbert, Martin A. Baumhoff, and Joan E. Hellen
1979 Milling Stone Cultures in Northern California: Berryessa I. Journal of California and Great Basin Anthropology 1(1):124-154. Malki Museum, Banning, CA.

United States Bureau of the Census
1860a Eighth Population Census, California, Tehama County. On Microfilm, California State Library, Sacramento.

1860b Eighth Census, Agricultural Schedule, California, Tehama County. On Microfilm, California State Library, Sacramento.

1870 Ninth Population Census, California, Tehama County. On Microfilm, California State Library, Sacramento.

1880a Tenth Population Census, California, Tehama County. On Microfilm, California State Library, Sacramento.

1880b Tenth Census, Agriculture, California, Tehama County. On Microfilm, California State Library, Sacramento.

1900 Twelfth Population Census, California, Tehama County. On Microfilm, California State Library, Sacramento.

United States Department of the Army, Corps of Engineers
1980 Design Memorandum No. 2, Cottonwood Creek, California. Draft General Design, Memorandum Phase I, Plan Formulation. U.S. Army Corps of Engineers, Sacramento District, Sacramento, CA.

United States Department of the Interior, Bureau of Land Management
n.d. General Land Office Plats, Vols. T29N, R5W; T29N, R6W; T29N, R7W; T30N, R6W; T30N, R7W. Dates Various. Compiler Anonymous. Bureau of Land Management, Sacramento, CA.

n.d. Land Status and Use Records. Vols. T29N, R5W; T29N, R6W; T29N, R7W; T30N, R6W; T30N,R7W on Microfiche. Dates Various. Compiler Anonymous. Bureau of Land Management, Sacramento, CA.

n.d. Mining Survey Records. Geographic Index, Microfiche No. 5:1153,1171,1172,1200. Bureau of Land Management, Sacramento, CA.

n.d. Patent Records. Various Dates, on Microfiche Cards. Bureau of Land Management, Sacramento, CA.

United States Weather Bureau
1934 Climatic Summary of the United States Section 16-Northeastern California. Government Printing Office, Washington, D.C.

Vaughan, Trudy
1984 The Archaeology of the Salt Flat Ethnohistoric Complex, (CA-TRI-862), Trinity County, California. Prepared for the Bureau of Land Management, Redding District Office, Redding, CA.

Wallace, William J., and Edith S. Taylor
1952 Excavations of SIS-13, a Rockshelter in Siskiyou County, California. University of California Archaeological Survey Reports 15(18):13-38, Berkeley, CA.

Walsh, Henry L.
1962 Hallowed Were the Gold Dust Trails. The Covered Wagon, Journal of the Shasta County Historical Society, pp. 7-10, Redding, CA.

Whistler, Kenneth W.
1977 Wintun Prehistory: An Interpretation Based on Linguistic Reconstruction of Plant and Animal Nomenclature. Paper Presented at the Third Annual Meetings of the Berkeley Linguistic Society, University of California, Berkeley.

Wiant, Wayne C.
1981 Southern Yana Subsistence and Settlement: An Ecological Model. Unpublished Masters Thesis, Department of Anthropology, California State University, Sacramento.

Wilson, Kenneth L.
1980 Cultural Resource Management: The Survey. Unpublished Masters Thesis, Department of Anthropology, California State University, Sacramento.

Woolfenden, Wallace B.
1970 A Study in Historic Sites Archaeology. M.A. Thesis on file at the Department of Anthropology, San Francisco State College, San Francisco, CA.

APPENDICES

C-074886

APPENDIX A

ARCHEOLOGICAL SITE RECORDS

(separate cover)

Compiled by
Steven B. Dondero
Keith Syda

C-074887

Six volumes of individual archeological site records and isolated artifact forms were prepared using California Department of Parks and Recreation Form 422A-G (Rev.8/82).

Removal of site specific locational information from the text of reports prepared for general distribution is required by U.S. Army Corps of Engineers regulation Er-1105-2-50. Authorized persons may review Archeological Site Records not included in the main report at the following locations:

U.S. Army Corps of Engineers
650 Capitol Mall
Sacramento, California 95814

California State Office of Historic Preservation
P.O. Box 2390
Sacramento, California 95814

Northwest Information Center
Department of Anthropology
California State University
Chico, California 95929

North Central Information Center
Archeological Study Center
Department of Anthropology
California State University
6000 "J" Street
Sacramento, California 95819

C-074889

C-074890

APPENDIX B

NATIONAL REGISTER OF HISTORIC PLACES

NOMINATION FORM

(Separate Cover)

C-074891

Removal of site specific locational information from the text of reports prepared for general distribution is required by U.S. Army Corps of Engineers regulation ER-1105-2-50. Authorized persons may review National Register of Historic Places Forms not included in the main report at the following locations:

U.S. Army Corps of Engineers
650 Capitol Mall
Sacramento, California 95814

California State Office of Historic Preservation
P.O. Box 2390
Sacramento, California 95814

C-074893

APPENDIX C

COST ESTIMATE

(Separate Cover)

Available at

U.S. Army Corps of Engineers
650 Capitol Mall
Sacramento, California 95814

C-074895

APPENDIX D

LOCATION OF MAPS NOT INCLUDED IN TEXT

Removal of site specific locational information from the text of reports prepared for general distribution is required by U.S. Army Corps of Engineers regulation ER-1105-2-50. Authorized persons may review maps not included in the main report at the following locations:

1" = 2000' Maps: Included as an End Pocket with Main Report. 5 sheets 28" x 40"

U.S. Army Corps of Engineers (Sannie Kenton)
650 Capitol Mall
Sacramento, California 95814

U.S. Army Corps of Engineers
Office of Chief of Engineers - DAEN-AFI-L/DAEN-AFH
20 Massachusetts Avenue Northwest
Washington, D.C. 20314

U.S. Army Corps of Engineers (Patricia Martz)
P.O. Box 2711
Los Angeles, California 90053

U.S. Army Corps of Engineers (Larry Banks)
1114 Commerce Street
Dallas, Texas 75242

State Office of Historic Preservation
P.O. Box 2390
Sacramento, California 95814

California State University, Chico

California State University, Sacramento

University of California, Los Angeles, Institute of Archeology

University of California, Davis, Department of Anthropology

Shasta College, Redding, California

Departmental Consulting Archeologist
National Park Service
1100 "L" Street Northwest
Washington, D.C. 20240

C-074899

Interagency Archeological Services
National Park Service
450 Golden Gate Avenue
San Francisco, California 94102

American Museum of Natural History, New York

Advisory Council on Historic Preservation
Western Division of Project Review
730 Simms Street, #450
Denver, Colorado 80401

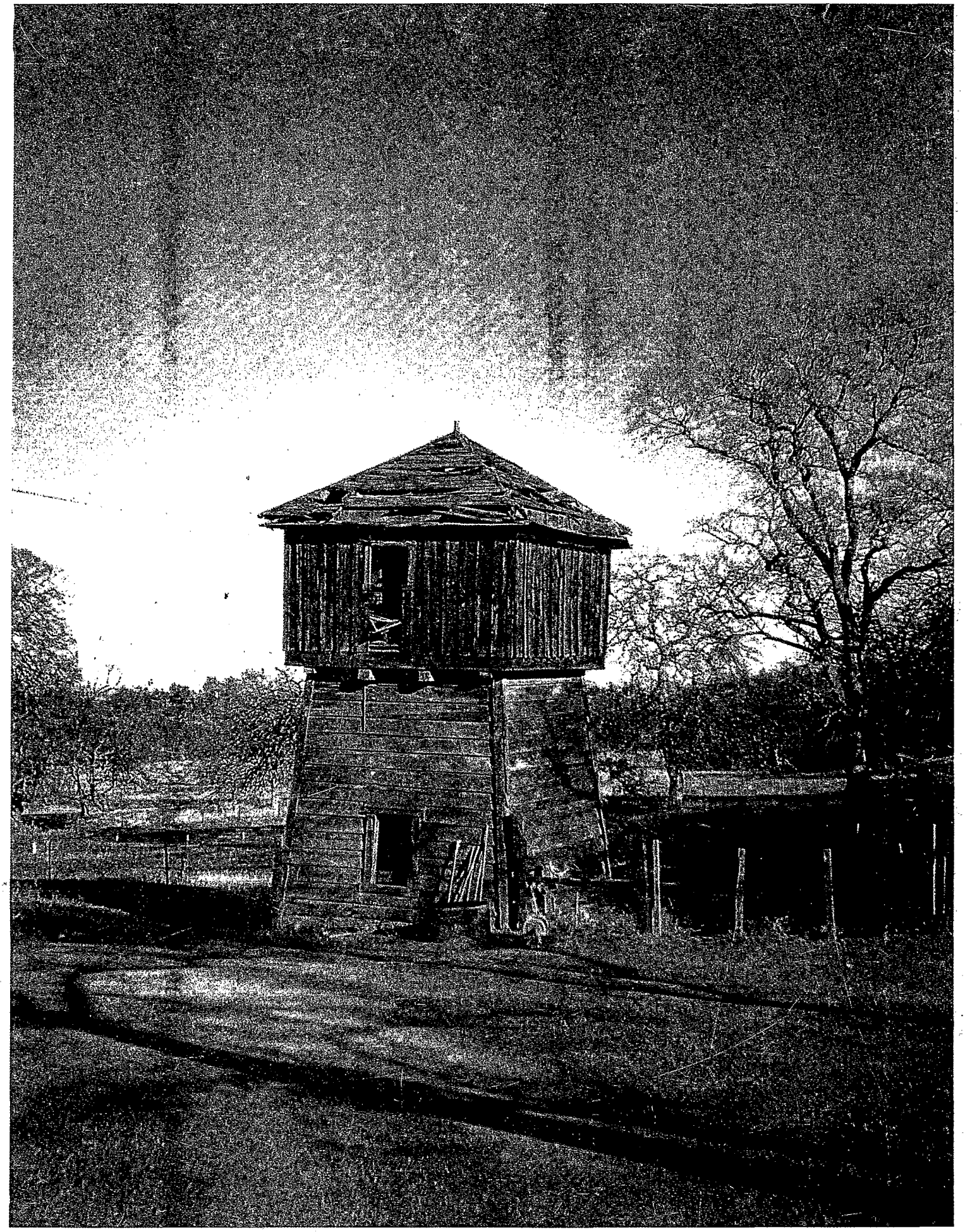
Advisory Council on Historic Preservation
1100 Pennsylvania Avenue, Northwest #809
Washington, D.C. 20004

1" = 400' Maps - Sheets 28" x 40"

U.S. Army Corps of Engineers
650 Capitol Mall
Sacramento, California 95814

California State University
Department of Anthropology
Archeological Study Center
6000 "J" Street
Sacramento, California 95819

C-074900



C—074901

C-074901